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AIR FORCE WRITERS' TACIT KNOWLEDGE OF THE USE OF TOPIC SENTENCES,

THE ACTIVE AND THE PASSIVE VOICE, AND NOMINALIZATION

by

Keith B. Riggle

A thesis submitted in partial fulfillment
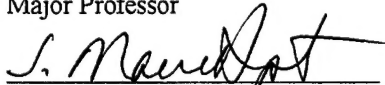of the requirements for the degree
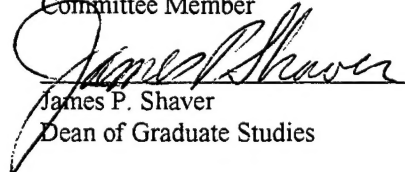
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1996

# ABSTRACT

Air Force Writers' Tacit Knowledge of the Use of Topic Sentences,

the Active and the Passive Voice, and Nominalization

by

Keith B. Riggle, Master of Arts

Utah State University, 1996

Major Professor: Dr. Keith Grant-Davie
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The frequencies of topic sentences, active and passive verbs, and superfluous nominalizations were examined in 185 documents written by civilian and military members of the U. S. Air Force. The frequencies were similar to those in similar types of documents written by similar kinds of writers from previous studies. There were no differences in the frequencies between writers who had received formal instruction in the Air Force writing style and those who had not. The features Air Force writers are taught are directed at improving readability rather than rhetorical effectiveness. However, the writers surveyed in this study were more rhetorically sophisticated than the writing instruction, offering numerous reasons besides readability for using, or in some cases not using, topic sentences and active verbs. The results of this study suggest that the advice to use topic sentences and active verbs and to avoid nominalization should be tempered by the rhetorical context.

(215 pages)

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## LIST OF DEFINITIONS

**Active voice verb:** a verb where the agent of the action is the subject of the sentence, while the receiver of the action is the direct object.

**Passive voice verb:** a verb where the receiver of the action is the subject of the sentence, while the agent of the action, if expressed, is the object of the preposition "by." The verb is in the past participle form along with a form of the verb "be." Also includes the pseudo passive verb which substitutes "got" for a form of "be."

**Superfluous nominalization:** "a noun that has an underlying expressible English verb" (Hake and Williams 436).

**Topic sentence:** "**the subject or controlling idea of the paragraph, and it signals the kind of information needed to support it**" (United States 41, bold in original).

**T-unit:** minimal terminable unit; "one main clause plus all subordinate clauses attached to or embedded within it" (Hunt qtd. in Braddock 289).

**Verbal style:** a style characterized by the use of the active voice and the avoidance of the passive voice and nominalizations.

# CHAPTER 1

## INTRODUCTION

### Statement of the Problem

Each year the U. S. Air Force spends thousands of dollars on training to help its members write better. But how effective or valid is this training? When people write on the job, do they use the principles they are taught (such as avoiding jargon) at the various professional military and officer pre-commissioning schools ? Officer pre-commissioning training, which includes the Air Force Academy, Reserve Officer Training Corps, and Officer Training School, especially has an opportunity to affect the way new officers write, since they must attend this training before they assume their duties. Both officers and enlisted personnel also have the chance to attend training during mid-career. This training is called professional military education (PME) and is intended to improve the leadership, management, and communication skills of military members. After attending these schools, do military members change the way they write, or do they resume writing the way they did before attending the schools, which is usually the way their bosses want them to write? These are important questions to answer if the Air Force is to be a good steward of public money and use its training dollars wisely.

Like many corporations and government agencies, the military has downsized its force and budget in recent years. Although the reasons for its downsizing differ, the effects have been similar. Budget and personnel cuts have forced the military to operate more efficiently and effectively in all areas. One area the military has emphasized is the area of writing. The Air Force especially has taken steps to eliminate unnecessary paperwork and regulations and make what remains more readable. As is common throughout the public and private sector, the Air Force has adopted the tenets of plain English style. The primary characteristics of this style include:

- The bottom line (the purpose of the report) stated in the first paragraph;
- A contract sentence (stating what major points the report will cover) immediately following the bottom line;
- Short paragraphs, bold headings that mirrored [sic] the language in the contract sentence, and lists;
- Simple sentences in subject-verb-object word order to encourage easy information chunking and thus promote quick semantic closure;

- Subjects and verbs as close to each other as possible;
- Concrete, easy-to-understand language; and
- First and second person personal pronouns. (Suchan and Colucci 464-465)

Although there have been several studies demonstrating the readability (Holland; Redish; Suchan and Colucci) and efficacy (Rogers and Brown) of the plain English style, I could find only one study on the effectiveness of training in plain English style. In a study of 15 Minnesota companies, Brown and Herndl found that some writers persisted in using nominalizations and narrative structures even after attending training seminars to learn how to avoid them and after their managers told them not to use such structures (11, 12). The authors hypothesize that the corporate writers continued to use these structures, not because they were not concerned about readability, but because the structures had "complex cultural sign FUNCTIONS . . ." (12; upper case in original) and that "political and psychological forces motivated the language behavior . . ." (12). That is, cultural norms concerning writing overruled the companies' explicit guidelines. Less proficient writers seemed to view using narrative structures and nominalizations as ways to secure membership in the corporate culture. Clearly this should concern organizations attempting to promulgate a more readable style of writing.

The Air Force's guidelines concerning plain English style are described in Air Force Handbook 37-137, *The Tongue and Quill* (*T&Q*). *T&Q* is the official style manual of the Air Force. It is also used as a communications training guide in the Air Force's officer pre-commissioning programs and at both officer and enlisted professional military education (PME) schools.

Most Air Force members receive formal instruction on how to write effectively. Enlisted members receive initial instruction at about the four-year point when they attend the first level of PME, Airman Leadership School. Officers receive initial instruction during their pre-commissioning training. In addition, officers receive follow-up training during their first level of PME, Squadron Officer School (SOS).

The instruction Air Force members receive concerning writing is quite similar to that commonly given concerning plain English style as described above. One minor difference is that the Air Force does not emphasize the use of paragraph headings. Instead of headings, the Air Force encourages the use of topic sentences.

In my eight years' experience in the Air Force, I have seen few members outside the Air Force's schoolhouses, including myself, deliberately follow the Air Force's writing guidelines, other than to use the prescribed formats. This raises some interesting questions about the effectiveness of Air Force writing instruction. To what extent does instruction carry over into practice? If the carry over is minimal, then what factors are impeding it? One guess is that social constraints and conventions for writing conflict with the Air Force's official guidelines. Since the official guidelines are not enforced, they are not consciously followed, and social factors take precedence over them.

## Significance of This Study

These questions, and the potential answers to them, have implications not only for the Air Force and the military, but for other government and corporate organizations, as well. These organizations may need to examine whether their writing training programs conflict with the actual conventions used within their organizations. If a conflict exists, until they modify either their training programs or their organizational culture, they are probably just wasting time and money.

There are other compelling reasons for studying the writing in the Air Force, as well. Considering the Air Force mission, the protection of U.S. national security, clear written communication is absolutely critical. Examples of actions that depend on an airman being able to extract information from written material abound. They range from the serious—how to properly service a nuclear missile or what to do in a terrorist attack—to the more mundane—which people to promote or when to submit a claim for travel expenses. As Nancy Wilds observes, one "can point to a sizable number of cases in which the failure to communicate properly led to severe losses of life and property" (193). Not only does the Air Force depend on clear written communication, but the public also depends on the Air Force using such communication.

As Wilds also notes, however, not many people in academia or the public at large know much about writing in the military (188). This is partly because the military is isolated from the public. With the military having an all-volunteer force at its lowest level since World War II, relatively few Americans have direct contact with the military. Nonetheless, the U. S. Air Force is a large, global organization, with over 400,000 active duty military members and almost 200,000 civilian employees; thus, it constitutes a

significant discourse community. The Air Force discourse community should be studied for no other reason than because of its sheer size and the volume of its written output in reports, memos, manuals, and regulations, which consumes a sizable portion of our tax dollars.

The military bears many similarities to other governmental and corporate organizations. Like those organizations, it is bureaucratic in nature, with a hierarchical structure, a system of rules, and a division of labor by specialty. Hence, as a discourse community, it could be expected to share many rhetorical conventions with other large organizations. Obviously, there are many differences between the military and other organizations. For instance, the military is more bound by custom and tradition than other organizations. The necessity to follow the chain of command is more rigid in the military; the authority of individuals is more clearly defined, as are the consequences for failing to follow orders. The system for promoting people to higher ranks is also clearly defined. Ostensibly based on merit, it is a system less political than in either the corporate or government sector. Unlike either the corporate or government sector, in the military failure to advance in rank results in involuntary termination of service. These are just some of the differences between the military and other organizations, differences which no doubt have a major effect on its organizational culture and hence its writing conventions. Furthermore, these cultural differences between the Air Force and other organizations may help explain the difficulty of transplanting plain English style into Air Force writing.

### Objectives of This Study

The primary objective of this study was to determine how effectively Air Force training promotes the use of the plain English style. To determine this, I examined three areas: how Air Force writers actually wrote, how they said they wrote, and why they wrote the way they did. Specifically, I sought answers to the following questions to reach my objective:

1. To what extent do Air Force writers produce writing that conforms to the Air Force's guidelines? In particular, to what extent do Air Force writers use topic sentences and write in a verbal style?

   a. Do writers conform to the writing guidelines more when writing to certain kinds of audiences or using particular genres of writing?

b. Do some groups of writers (e.g., based on sex, rank, specialty, education) conform to the writing guidelines more than other groups?

2. How do writers' stated preferences concerning the writing guidelines compare to their writing practices?

3. What reasons do writers give for complying or not complying with the Air Force's guidelines?

I believed that answering these questions would provide a good indication of the effectiveness of Air Force writing instruction. If members who have received the training used topic sentences and active verbs more than those who did not receive the training, then the training could be assumed to be effective. If there were no differences between those who were trained and those who were not trained, then the training was not effective. Furthermore, if those who were trained used the features less than those who were not trained, then there was a serious problem with the training. In either of the latter two cases, it would be important to determine what factors were preventing the training from being effective. As Brown and Herndl suggest, these factors might be cultural norms within the organization—unwritten rules obtaining and maintaining group membership—which would be extremely difficult to change. Chapter 2 discusses how these unwritten rules operate in organizations in terms of writing.

## CHAPTER 2

## LITERATURE REVIEW

### The Social Context: Discourse Community Theory

A major focus of writing theory and research in the past 15 years has been the social contexts within which writing is done, including writing in the workplace (Faigley; Odell). The writing context in an organization includes more than the immediate purpose and audience for a document; it includes "the interrelationship among individual, departmental, and corporate goals" (Barabas 54). Writers need to have a broad organizational perspective, understanding the multiple purposes and audiences for which they write and the wide-ranging political effects their documents can have (Barabas 53). Broadhead and Freed assert that writing produced in the workplace cannot be understood without understanding the organization in which it is produced (*Variables* 59, 60). In their study of proposal writing in a large, international management consulting firm, they found that the norms, traditions, and values of the firm had a powerful effect on the firm's writers, an effect as powerful as the firm's desire to meet the needs of its readers and thereby win consulting contracts (Broadhead and Freed, *Variables* 64). Even many technical writing texts now discuss the social situation (Boiarsky; Markel; Lay et al.), although this has not always been the case.

One widely accepted concept to which I have already referred is the idea of discourse community. Since I examined the Air Force as a discourse community, it is important first to understand the concept. Patricia Bizzell seems to have been the first to use the term, although she borrowed the idea from literary studies' interpretive community and sociolinguistics' speech community. In using the term, Bizzell was reacting to problems she saw with the application of cognitive psychology to composition studies. The cognitivists posited the existence of innate structures that enabled people to learn language. Variations in language use from one location to another were simply superficial differences in lexical choice because the mental structures were the same. Thus, the cognitivists viewed writing primarily as a problem of audience analysis, of persuading an audience by determining the lexical choices that matched its personal preferences (Bizzell 68).

According to Bizzell, innate structures do help people learn to use language, but language use is always learned within a native speech community (Bizzell 70). Thus, it is not the innate structures that matter, but how language is used. Differences in language use from one community to another are significant and not mere lexical choices. Language use in a community is governed by conventions that determine how problems are defined and solved (73), how persona is established (76), and how goals are set (77). In short, these conventions determine what constitutes reality for the community (75). Society is made up of many such communities. A community that shares conventions for thinking and using language is a discourse community. Obviously the conventions for different communities may overlap. These conventions are shaped by "historical and cultural circumstances" (69) and can change over time.

Writing is more than a matter of persuading an audience by catering to its personal preferences; it is understanding and using the conventions of the discourse community, thereby persuading the audience the writer is a worthy member of the community (Bizzell 70). For this reason, Bizzell argues that studying writing in the contexts of the discourse community in which it is produced is essential. Analyzing the texts a community produces can partially reveal the community's conventions, but the community itself must be examined, as well (76).

Another proponent of the idea of discourse community is James Porter. Porter offers a two-part definition of "discourse community":

> (1) a group of individuals with specific needs, who either accept or reject the reading role provided by the text; and (2) a system governing discourse production within that community, a system with stated and unstated conventions, a vital history, mechanisms for wielding power, institutional hierarchies, vested interests, classifying principles and agencies, rules of exclusion, and so on. (247)

Porter states that audience analysis involves determining what the conventions of a discourse community are; to be successful, a writer must understand, implicitly at any rate, the community's conventions (244). The key to understanding the discourse community, according to Porter, is that it is intertextual—that is, "[t]he texts produced within the community refer to other texts within it (and to some outside it); rely on sources (acknowledged and unacknowledged) for its meaning; and anticipate still other texts to come" (248). The intertextuality of texts is another reason why studying a discourse community's texts is important. Like Bizzell, though, Porter asserts that studying the discourse is not enough—one must study

the community that produces it. For writers, this means "*socialization* into the discourse community, which requires an understanding of the community's unstated assumptions as well as its explicit conventions and intertextuality" (248; emphasis in original). For researchers, this statement implies that, to understand a discourse community and its conventions, they, too, must be immersed in the community. This suggests an ethnographic methodology where the researcher is a participant in the community.

Porter's idea of writers' implicit understanding of a discourse community's conventions is taken a step further by Winsor. Drawing on a large body of research on tacit versus explicit knowledge, as well as her own work with student engineers who participated in an internship program, she asserts that much of the knowledge writers in the workplace have of how to write is tacit, not explicit, knowledge. Tacit knowledge is knowledge that has been internalized and can be expressed only with difficulty. It is often knowledge of how to perform a task. Explicit knowledge, on the other hand, is knowledge about something and can usually be expressed verbally. For example, rules of the game of basketball would be explicit knowledge, while knowledge of how to play basketball would be tacit knowledge. Knowledge of the rules, while important, does not enable one to dribble, pass, or shoot—skills that are necessary to play the game. These skills can be learned only through practice.

Winsor compares students learning how to write engineering reports with scientists learning how to build a certain kind of laser, pointing out that many social scientists view both as culturally formed tacit knowledge as opposed to rule-driven explicit knowledge (160). Winsor's student engineers learned to write in an organization by imitating a previously successful piece of writing and obtaining feedback on their own efforts (162, 163). They eventually internalized what constituted acceptable writing but often could not verbalize what they knew (164). They did not learn to write simply by following rules; they recognized the conventional way of writing in the organization and tacitly learned to follow the conventions in their own writing (164). Furthermore, the student engineers judged their writing not by how well it conformed to the rules, but by how effective it was—did it get the job done (165)? In some cases the conventions of an organization might even contradict the textbook rules, such as to avoid passive voice or excess nominalization, two things that have been shown to decrease readability (166). However, the conventions used by the competent writers in an organization *are* the rules.

Faigley also argues that, when studying nonacademic writing, one must take a social perspective—that is, look at the discourse community where the writing takes place. He agrees with Bizzell that writing does not take place in isolation; it takes place in a social and cultural setting with social norms, roles, and structures (235). Faigley adds several useful ideas to the concept of discourse community. He defines discourse community as a group of people with similar language patterns, genres, and conventions that mold both the way writers write and the way readers in the community interpret writing. The members of the community possess a specialized competence in writing that enables them to participate in the community. People within a discourse community "know what is worth communicating, how it can be communicated, what other members of the community are likely to know and believe to be true about certain subjects, how other members can be persuaded, and so on" (238). The discourse community shapes both the form and content of writing within the community.

## Criticisms of Discourse Community Theory

Some scholars have challenged discourse community theory in whole or in part. Vandenberg and Morrow disagree with a narrow application of the theory to writing pedagogy. A narrow interpretation of discourse community theory sees rigid boundaries between communities. Such a view assumes that a person from one community cannot understand the writing produced in another and that any interpretation the outsider has of that writing is incorrect (19). Clearly such assumptions are insupportable since readers from different communities *can* understand each other's writing, and, although their interpretations may differ from those of members inside the community, they are not necessarily wrong (20). Indeed, new ideas often arise when people cross community boundaries—the idea of discourse community itself is a result of such boundary crossing. Such multi-community borrowing is a key aspect of intertextuality, an idea Vandenberg and Morrow support (22). What they disagree with is the prescriptive use of discourse community theory, of teaching conventions as if they can never change or admit conventions from other communities. Since my interest is on applying discourse community theory to research and not pedagogy, I will focus on their critique of the theory's assumptions and take it as a caution not to apply the theory too narrowly.

Thomas Kent raises even more serious objections to discourse community theory, which he identifies with social constructionism, advocating that scholars abandon it in favor of what he calls externalism. Kent identifies three problems with social constructionism: the incommensurability of discourse communities, relativism, and skepticism. Kent equates the idea of discourse communities with what Davidson calls conceptual schemes, which are "ways of organizing experience; they are systems of categories that give form to the data of sensations; they are points of view from which individuals, cultures, or periods survey the passing scene" (qtd. in Kent 425, 426). If one accepts the notion of conceptual schemes, according to Kent, then "our knowledge of others and of the world always will be relative to the particular conceptual schemes or communities in which we exist" (426).

Kent asserts that part of social constructionism is Thomas Kuhn's idea in *The Structure of Scientific Revolutions* that different conceptual schemes are incommensurate, that is, having no common standard of comparison. This is similar to Vandenberg and Morrow's observation that in a narrow interpretation of discourse community theory, members of different discourse communities would not be able to correctly interpret the other's writing. Kent points out this is clearly not the case (428). If one does not hold a rigid view of discourse communities but sees them as overlapping and containing each other, however, one should not have this problem. Different communities can understand each other's writing because they share many of the same conventions. Moreover, as Edward Schiappa explains, by "incommensurate" Kuhn does not mean "incomparable" but "having no common measure"—that is, "there is no neutral observation language with which to talk about theories" (Schiappa 522). Different conceptual schemes can be compared, but any understanding of a scheme other than one's own is incomplete.

Kent's second criticism of discourse community theory is that it leads to relativism. Since all knowledge and beliefs are relative to the conceptual scheme or social conventions of a discourse community, the knowledge and beliefs of one community have no more authority than another. Kent claims this leaves social constructionists open to critics "who accuse them of possessing no authority to talk about the nature of truth, value, meaning, knowledge, or even ethics since they choose not to describe these concepts in an essentialist way" (429). As with the problem of the so-called incommensurability of conceptual schemes, the problem of relativism arises mainly from a narrow interpretation of discourse

community. Most discourse community theorists consider communities to be overlapping and, in many cases, nested. Thus, different communities may share the same knowledge, beliefs, and values, mitigating the problem of authority.

Kent's third criticism of discourse community theory, skepticism, is related to relativism. If everything one knows or believes is mediated by a conceptual scheme, then, according to Kent, we can never know anything with certainty about the world or about the minds of others. All we really know is our conceptual scheme, or what is in our own minds. If this is the case, Kent argues "we possess no non-question-begging answer to the skeptic who asks, 'How may we be confident about our interpretations concerning the mental states of others, and how do we know that we know anything about the world?'" (429). Kent claims that the response that conceptual schemes are all we need to know begs the question since it does not explain how it "enables us to know what others intend, desire, and believe, nor does [it] explain how these norms hook on to the world" (429). Admittedly, this is a difficult question for the social constructionist to answer, and it is beyond the scope of this paper to do so. However, discourse community theory can still be useful if one bears in mind a few precautions.

The key to using discourse community theory appropriately seems to be to apply it neither too narrowly nor too broadly—or, to use Kent's terms, neither too thickly nor too thinly. Kent notes that conceptions of discourse community range from a thick conception of a community with rigid boundaries to a thin conception of a community with undefined boundaries overlapping many others. Kent admits conceptions of community may fall anywhere on a spectrum from thick to thin. If one applies a concept of community somewhere in the middle, that is, of communities embedded within and overlapping each other but with somewhat definable boundaries, one can mostly avoid the problems Kent points out. Then, as Vandenberg and Morrow acknowledge, one can take advantage of "the great descriptive power of discourse community theory" (21).

## Discourse Conventions

Part of the descriptive power of discourse community theory includes the idea that socially derived conventions guide discourse in communities. Colomb and Williams assert that writing can only be

understood in "the social and rhetorical situation, the local universe of tacit conventions and understandings that govern what counts as acceptable style, acceptable terminology, acceptable argument, acceptable form" (87). One aim of research in the workplace is to describe those conventions. Broadhead and Freed have described five different types of conventions: cultural, institutional, generic, personal, and situational (*Variables* 10). Cultural conventions are the rules for good writing contained in handbooks and textbooks of the culture at large (11). Institutional conventions are the written or unwritten rules in a particular company, organization, discipline, or profession, while generic conventions are the constraints imposed by a certain genre of writing (12). Personal conventions are the writer's "linguistic or rhetorical preferences," while situational conventions are the parameters of the rhetorical situation, including audience, purpose, and subject (13).

One aim of research is to describe how social context influences discourse conventions. Odell and his colleagues were some of the first researchers to study writing in the workplace. In a study involving administrators and case workers in a county social-services agency, Odell and Goswami found that 96% of writers' reasons for stylistic and substantive choices were based on rhetorical considerations including purpose, audience, subject, and persona (211-212). Using the technique of the discourse-based interview, Odell, Goswami, Herrington, and Quick found that employees in a state Department of Labor were aware of their rhetorical context, but that "writers' considerations of rhetorical context [varied] according to: 1) the type of choice writers were making [e.g., how to phrase a command or request]; and 2) a writer's experience and status in an organization" (Odell, Goswami, Herrington, and Quick 31). In another study, Odell examined the writing of analysts at a state agency that made recommendations about and drafted procedures to implement proposed legislation. When he asked the analysts why some of the elaborations in their writing were necessary, he found their reasons were based on elements of the organizational culture, including its attitudes, values, prior actions, and standard operating procedures (252). Broadhead and Freed also found that organizational culture played a significant role in shaping the writing of proposals in two different organizations that did management consulting ("Discourse" 158). Kleimann shows how the cultures within different divisions of the same organization (the General Accounting Office) affect their processes of reviewing audit reports (62).

As I discussed previously, many business and governmental organizations have adopted as institutional conventions the tenets of plain English style. Two of these tenets are to use topic sentences and a verbal style. The following two sections describe some of the research that has been conducted concerning topic sentences and verbal style. (See the List of Definitions for terms pertaining to these two features.)

## Topic Sentences

One convention of plain English style advocated in technical writing handbooks is to include a topic sentence in expository paragraphs, preferably at the beginning of each paragraph. However, the frequency with which writers use topic sentences varies with the type of writing. Braddock, in attempting to determine the frequency and placement of topic sentences in paragraphs, found not only simple topic sentences, but topic sentences spread over two or more sentences, as well as paragraphs with no topic sentences. In the 25 expository essays he reviewed, consisting of 889 paragraphs, 45% contained simple topic sentences such as those urged by the handbooks. In 39% of the paragraphs, Braddock had to assemble the topic sentence from three or more sentences (Braddock 298). As far as determining how often topic sentences occurred in the first T-unit of paragraphs, Braddock again found his task complicated by the fact that not all topic sentences are contained in a single sentence. Since he was also looking at how often topic sentences occurred in the second or last T-unit or somewhere in between, he confined his search to paragraphs of four or more T-units. Out of 190 paragraphs he examined, the topic sentence was contained in the first T-unit 47% of the time. In 26% of the paragraphs, the topic sentence was between the second and last T-units, in 15% the second T-unit, and in 12% the last T-unit (Braddock 299).

As Braddock points out, however, his sample of expository essays taken from *The Atlantic*, *Harper's*, *The New Yorker*, *The Reporter*, and *The Saturday Review* is not representative of scientific or technical writing (Braddock 301). Other researchers have examined the frequency of topic sentences in academic, scientific, and technical writing. In their corpus of 16 texts from industry containing 151 paragraphs, Freisinger and Petersen found that only 55% of the paragraphs contained explicit topic sentences, while 40% did not contain topic sentences; the remaining 5% contained implicit topic sentences

(299). Of the 83 paragraphs containing explicit topic sentences, in 89% of them the topic sentence was the first sentence (299). Freisinger and Petersen also found that writers of their industrial samples supplemented topic sentences with headings and layout to mark the top-down structure of the text (300). Popken found the lowest frequency of topic sentences in technical writing, with 32% of the paragraphs in his corpus containing them (Popken 51). He also found that letters contained fewer topic sentences than reports, and letters contained shorter paragraphs than reports (Popken 52). Popken speculates that differences in the purposes, content, and readability between letters and reports determined the paragraph lengths of each genre, which in turn constrained the use of topic sentences (Popken 54). Letters, with their short paragraphs, generally did not require topic sentences to assist the reader, while reports did.

Other research into text structure does seem to lend weight to the guideline that paragraphs should begin with topic sentences. Selzer cites research supporting the hypothesis that topic sentences improve readability and facilitate recall of information (82). Huckin, drawing on research in cognitive psychology, explains that topic sentences help improve readability by "activating high-level schemata . . ." (97). He refers to research indicating that readers process texts hierarchically, using information higher in the hierarchy, such as in topic sentences and the first sentences of paragraphs, to make inferences about the following sentences (Huckin 95). Huckin also points out headings appear to be an even better method of activating schemata than topic sentences, and that both techniques seem to be more useful for people who are not specialists in the text they are reading, while the "specialist reader, by contrast, often does not need such aids, at least not to the same degree, and may even feel at times that they just get in the way" (Huckin 98).

**Verbal Style**

Another convention of plain English style is to write in an active, verbal style instead of a passive, nominal style. A verbal style is characterized by the use of the active voice while a nominal style is characterized by overuse of the passive voice and nominalization.

*Active Versus Passive Voice*

In the passive voice, of course, the usual subject-verb-object order is reversed so that the object occupies the subject slot; the subject, if it is not deleted, becomes the object of the particle by; and the verb is transformed into the past participle preceded by a form of *be*. Most contemporary technical writing texts advise writers to avoid the passive voice, using it only when the agent is "unknown, unimportant, obvious, or better left unnamed . . ." (United States 34). Many handbooks describe the passive voice as weak, indirect, lifeless, deadly, impersonal, ambiguous, or wordy. As several authors have noted, however, even when advocating the active voice, these handbooks often lapse into the passive: "Active voice is recommended for most technical writing because it tends to make your style much more direct and explicit" (Lay et al. 296). Who is doing the recommending here?

Not all authors view the passive voice as inherently bad style, though. Trammell argues that in some situations, the passive voice is more appropriate than the active (188). In his textbook, Markel simply advises writers to "use active and passive voice appropriately" (163) rather than avoid the passive voice. When discussing grammar check programs that can identify the passive voice, he asserts, "Use passive voice when it works better than the active voice; don't be bullied into changing to the active voice" (165). Allen, however, cautions that the passive voice is not just "another way of expressing a sentence in the active voice. . . . We ought to stress the fact that the passive voice has an important and special place in the language; most sentences that are good in the active voice are just grotesque curiosities when put into the passive voice" (qtd. in Svartvik 2).

In addition to the use of the passive voice when the agent is "unknown, unimportant, obvious, or better left unnamed," Svartvik suggests two other possible uses: to maintain sentence balance and the flow of given and new information (166). He says that "the passive may be obligatory both to avoid imbalance and to accord with the principles of FSP," (166) or functional sentence perspective, where given information precedes new information in a sentence. By maintaining a consistent string of subjects, a writer can achieve greater coherence in a text (Kies 304). As evidence for the first use, Svartvik points out that in his corpus of 28 texts, containing 323,000 words, the mean length of subjects was 3.3 words, with a mode of 1, while the mean length for agents was 8 words, with a mode of 6 (129). Thus, agents tended to be

longer than subjects. Svartvik concludes that "one of the motivating factors in selecting the passive in favor of the active is the preference for placing heavy nominal groups at the end of sentences" (157). This conclusion, while reasonable, may be undercut somewhat by the fact that only 20% of the passives in Svartvik's corpus contained agents (141). Svartvik's conclusion that the passive voice may be used to properly maintain the distribution of given and new information also seems reasonable, but he does not adduce any evidence to support it. I would add that the active voice may be used for the same two reasons that Svartvik suggests for the passive.

The passive voice may also be used when the agent is inanimate, static, or nonvolitional (Cornelis 290). Readers do not object to the passive in these instances, and writers can use the passive voice to create distance between the agent and the reader. However, when agents are animate, dynamic, or volitional, writers should use the active voice. Readers identify with agents in the subject position and see the event from the agent's point of view; therefore, writers can use the active voice to decrease distance between the agent and the reader. For example, Cornelis recommends using the active voice for user actions in computer manuals and the passive voice for automatic machine or program actions (291).

In a study of how 12 authors of research reports from the *Journal of Speech and Hearing Disorders* used the active and passive voice, Riley found that 36% of the main verbs, including intransitive verbs, were passive. She concluded writers used the passive for expository functions, since it distances the author from the subject, and the active for argumentative functions, since it decreases distance (253). Rodman analyzed a corpus of 16 research reports from different scientific journals, finding that 66% of the finite transitive verbs were passive (313). Noting that an infrequently used form is often stylistically marked, she focused on the functions of the active voice. She classified the subjects of active verbs into five categories and found the frequency of each category to be as follows:

Real world objects—32%

Humans—27%

The discourse itself—17%

The research process—14%

A research product—10% (Rodman 315).

The pronoun *we* comprised 27% of the human category, while researchers other than the authors of the articles constituted another 45%; apparently, the use of *we* was an attempt to be more personal (Rodman 317).

In their case study of two experienced management consultants, Broadhead and Freed found that 16.5% of the base clauses were in the passive voice (*Variables* 149). This percentage translates to an approximate ratio of one passive clause for every six active or intransitive verbs. In a limited study of 16 business and industrial writing samples, Freisinger and Peterson found that 22% of the verbs were passive, 58% were active, and 21% were *to be* verbs (they do not explain how they treated intransitive verbs other than *to be*) (294). This is a ratio of about one passive verb for every three active verbs, which corresponds to what Svartvik found in one scientific text (46). Freisinger and Peterson concluded from their data that contemporary technical writers do avoid the passive voice, but a one-to-three ratio seems high, especially in comparison to the 1:15 ratio Svartvik found in two novels (46). However, the one-to-three ratio can be used as a basis of comparison for the current study.

*Nominalization*

A superfluous nominalization is a "noun that has an underlying expressible English verb . . ." (Hake and Williams 436), often contained in a sentence with a weak verb such as be, make, give, do, etc. For example, "give a presentation" is the nominalized form of "present." Lees (1968), Vendler (1968), and Levi (1978) have identified numerous types of nominalization transformations. However, Chomsky is not convinced that all nominalizations result from transformations. He suggests some nominals, such as gerunds, may be formed transformationally, while others are derived lexically (188). These so-called "derived" nominals are formed not by base or transformational rules, but "fairly idiosyncratic morphological rules will determine the phonological form . . ." (Chomsky 190).

In any case, English, like many other languages, is highly nominalized (Jacobs and Rosenbaum 225). The idiosyncratic nature of derived nominals makes them difficult to identify. While all gerunds end in -ing, following are the primary suffixes used to lexically derive nominals, with examples:

| zero: | run, walk, study, etc.; |
|-------|-------------------------|
| -ion: | explanation, motion, division, etc.; |
| -ment: | movement, ailment, involvement, etc.; |
| -al: | refusal, disposal, reversal, etc.; |
| -ure: | mixture, departure, rupture, etc.; |
| -th: | death, birth, growth, etc.; |
| others: | life, thought, laughter, etc. (Vendler 40) |

As one can see by looking at almost any piece of writing, it would be difficult to do without these nominalized verbs. Nominalizations can serve a useful purpose by compacting a whole sentence or clause into a noun phrase or even a single noun (Vendler 31), although they usually lose agency by omitting so many words. For example, nominalization is itself a nominalization. So instead of saying, "When one nominalizes verbs, it can serve a useful purpose," I can replace the whole clause with a single word, which acts as the subject of my sentence. As with passives, nominalizations can also be used to achieve coherence. However, writers tend to overnominalize in some situations. What makes a nominalization superfluous is that, instead of being legitimately used as a noun, it buries, or "smothers," the real verb. Thus, superfluous nominalization is as much a stylistic as a grammatical issue and is, therefore, highly subjective. For example, to me, the phrase "to be in conformance with" is a superfluous way of saying "to conform with," but to the writer, it was not superfluous; it was the most accepted way of saying it in her organization.

Most of the research on nominalizations indicates that "sentences with them were more difficult to comprehend and recall than sentences with comparable active verbs" (Selzer 81). However, the research about the readability of active and passive voice is contradictory. Some studies show that the active voice is easier to read, while other studies indicate that reading ease depends on whether the agent or the object is more important; if the former, then active sentences are easier, but if the latter, then passive sentences are easier (Selzer 80, 81).

In spite of the greater readability of verbal constructions, both professionals and English teachers appear to prefer the nominal style. In all except one case, Odell and Goswami found that different types of writers (administrators versus case workers) preferred a mixture of passive and nominal constructions to active in different types of writing (informal memos, formal memos, and letters) (220). The one exception was that eligibility case workers ranked active constructions higher than the passive-nominal version in

letters, although they still ranked the pure passive version the highest (Odell and Goswami 220). In four different experiments, Hake and Williams found that high school, junior, and four-year college English teachers rated nominal versions of student essays higher than otherwise identical verbal versions, even though English teachers usually advocate a verbal style (437-443). Judging from the comments the teachers made, Hake and Williams conclude that the teachers considered the essays in the nominal style to be more intellectually mature and sophisticated than the essays in the verbal style (444). They predict that "many professionals will, when asked, choose a nominal passage over a parallel verbal passage simply because the nominal style sounds to them more professional" (Hake and Williams 445).

## The Reciprocal Nature of Discourse Conventions

Not only do social factors affect writing, but writing affects the social context as well. Doheny-Farina illustrates in his case study the power of a single text, a business plan, in creating a company and discourse community, as well as the weaknesses in the genre of the business plan in sustaining the company (331). Studies on the different genres of business writing have noted the reciprocal relationship between genre and social context. Smart describes how contextual factors reinforce the genres used in the Bank of Canada (125). Conversely, Cross relates how generic constraints and their interaction with the organizational culture of an insurance company give rise to conflict in the composing of an executive letter of an annual report and a corporate annual plan (149). This reciprocal relationship between a community's conventions and its writing leads to the proverbial chicken-and-the-egg problem. Do the conventions guide the writing, or does the writing reinforce the conventions? Probably both effects take place in a never-ending cycle, making it difficult to determine which came first. It may be more important to understand that a relationship exists between social conventions and writing than it is to know which caused which.

Another important influence on discourse conventions is technology. The social context in an organization affects how new technologies such as word processors and e-mail will be used, while the new technologies change the patterns of communication in an organization, including its discourse conventions; the new communication patterns in turn modify the social context in the organization (Duin and Hansen 5). One example I have observed in my experience in the Air Force is that, prior to the introduction of e-mail,

the distance between the wing commander, usually a colonel, and his or her subordinates increased as their rank decreased. While he or she might be on a first-name basis with other colonels, he or she rarely knew even the last names of his or her second lieutenants. Most correspondence between the wing commander and lower ranking subordinates was accomplished using formal memoranda that were actually signed by higher ranking members and reviewed by everyone in the chain of command. Being a highly technological organization, the Air Force eagerly embraced the use of e-mail. With the availability of e-mail, wing commanders are more likely to communicate directly with subordinates, and subordinates can respond directly to the wing commander without the e-mail going through everyone in the chain, although information copies are usually sent to those people as well. Thus, electronic mail has altered part of the social context: the concept of chain of command and the need to follow it rigidly. In addition, e-mail is a much more informal medium than the memorandum, with different discourse conventions.

## Implications for Writing in the Air Force

The literature clearly supports the common sense notion that many aspects of writing in the work place are conventionalized. How different writing conventions arise in a work community and what role they play in enabling community members to interpret texts are not well understood. Several studies provide evidence that social and cultural factors in the work context influence discourse conventions, while other studies show how discourse itself influences a company, suggesting that the relationship between discourse and community is reciprocal. Two major conventions of technical and business discourse are to include topic sentences at the beginning of paragraphs and to use an active verbal style. Like most professional discourse communities, the Air Force officially subscribes to these conventions. While there is some empirical support that the use of these conventions improves readability, the preponderance of the research at this point indicates that in actual practice, these conventions are not preferred or used. Topic sentences and the verbal style are used about as much in the Air Force as they are in other professional communities, which is to say, not very often. What little research there is examining the reasons for the low use of plain English style conventions suggests that highly competent writers who feel secure about their jobs are less likely to use inappropriate conventions, such as nominalizations, than less competent writers

who feel anxious about their job security (Brown and Herndl 13). Perhaps there are also significant differences between more and less competent writers in the Air Force—one would certainly hope so. However, job security is probably less of a factor, especially now that the downsizing of the military is complete. There are probably other factors affecting the use of topic sentences and the verbal style in the Air Force; one purpose of this study was to identify them.

# CHAPTER 3

# METHOD

## Research Design

For this study I used an *ex post facto* descriptive research design, which means I examined writing after it had taken place without any intervention on my part. A descriptive research design was appropriate since I was interested in the possible relationships between certain writing conventions and writers' reasons for using them, as well as possible differences among groups of writers. Previous research, primarily by Brown and Herndl and by Odell and Goswami, suggests such relationships and differences do exist in some organizations, but there is not enough research at this point on which to base hypotheses that can be tested by experimental means.

I used a combination of quantitative and qualitative methods to collect the data for this study. The quantitative methods were used to determine the frequency of active verbs and topic sentences. The qualitative methods, which included a survey and an interview, were used to identify the conventions governing Air Force writers' use of active verbs and topic sentences. A small portion of the study was quasi-experimental in nature, forcing writers to choose among various stylistic options to compare their stated preferences with their actual choices.

In this study I examined two features the Air Force encourages its writers to use: topic sentences and active verbs. I selected these features because their frequency in writing is measurable and because previous research suggests their inclusion or omission reveals information about the social context of the writer.

Before embarking on the primary phase of the study, I pilot tested my methods and instruments with a small group of participants that was totally separate from the main group. In each of the sections below, the procedures I used in the main study are described first, followed by any different procedures I had used in the pilot study.

## Participants

Twenty-eight employees of Hill Air Force Base, Utah voluntarily participated in the study. The sample consisted of 12 military members (43%) and 16 civilian employees (57%). The population of the base consists of approximately 4600 military members (37%) and 7900 civilian employees (63%). Thus, my sample represented the makeup of the base fairly well. With a sample size of only 28, however, only 0.2% of the population was included, making this investigation a case study. Initially I estimated I would need a total of 91 people in my sample to detect a large effect size at $\alpha = .05$ and $\beta = .80$ (Cohen 158). To compensate for people who declined to participate in the study, I requested twice as many names be included on the potential participant lists, for a total of 182 people. As I will explain below, I actually received the names of 153 people.

Although I wanted the sample to match the population as closely as possible with respect to gender, this did not happen. The civilian and military personnel offices provided me with computer-generated 107- and 46-name lists, respectively, of potential participants. Both personnel offices were asked to produce random lists by computer, stratified by sex and grade in order to include the same proportion of people as were in the overall population. I was particularly interested in seeing if there were significant differences between men and women and among people of different pay grades. Since the number of women and of people in the higher grades was so low to begin with, I requested a stratified sample. The civilian list contained the names of 16 females, but only one of them agreed to participate. On the other hand, the military list contained the names of only four males, none of whom agreed to participate. (See Table 3 for a summary of the reasons subjects gave for not participating.) The composition of the sample and the population by gender was as shown in Tables 1 and 2.

To avoid having to obtain consent for my study from the civilian employees' union, the civilian personnel office provided me only with the names of non-union employees. Non-union employees are primarily white-collar, higher grade workers. The participants in my study ranged in grade from GS-11 through GS-14. These are the types of employees most likely to write on the job, so this was not a problem. However, on the military side, no enlisted members participated in the main study, and certainly

Table 1.  Composition of the Sample by Gender

| Gender | Civilian | | Military | | Total | |
|---|---|---|---|---|---|---|
| | Count | Pct. | Count | Pct. | Count | Pct. |
| Female | 1 | 6% | 12 | 100% | 13 | 46% |
| Male | 15 | 94% | 0 | 0% | 15 | 56% |
| Total | 16 | 100% | 12 | 100% | 28 | 100% |

Table 2.  Composition of the Population by Gender

| Gender | Civilian | | Military | | Total | |
|---|---|---|---|---|---|---|
| | Count | Pct. | Count | Pct. | Count | Pct. |
| Female | 2059 | 26% | 565 | 12% | 2624 | 21% |
| Male | 5818 | 74% | 4048 | 88% | 9866 | 79% |
| Total | 7877 | 100% | 4613 | 100% | 12490 | 100% |

many mid to upper grade enlisted personnel write as part of their jobs.  People's reasons for declining to participate are given in Table 3.  Officer participants ranged in grade from O-1 (second lieutenant) through O-4 (major).

I solicited the participation of the potential participants by mailing them the cover letter in Appendix A.  Along with the cover letter I included the survey I wanted the participants to fill out, an Informed Consent Form, and a self-addressed, stamped envelope.  I requested that the Informed Consent Form be returned even if the individuals declined to participate so that I could positively determine which

**Table 3. Reasons Given for Not Participating**

| Reason | Civilian | | Officer | | Enlisted | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Count | Pct. | Count | Pct. | Count | Pct. | Count | Pct. |
| No time | 19 | 21% | 3 | 16% | 3 | 21% | 25 | 20% |
| Don't write on job | 22 | 24% | 0 | 0% | 2 | 14% | 24 | 19% |
| No writing in 6 months | 7 | 8% | 4 | 21% | 0 | 0% | 11 | 9% |
| No writing on disk | 2 | 2% | 0 | 0% | 0 | 0% | 2 | 2% |
| Nothing unclassified | 9 | 10% | 1 | 5% | 1 | 7% | 11 | 9% |
| Don't want to participate | 7 | 8% | 0 | 0% | 0 | 0% | 7 | 6% |
| Other | 7 | 8% | 4 | 21% | 1 | 7% | 12 | 10% |
| No response | 18 | 20% | 7 | 37% | 7 | 50% | 32 | 26% |
| Total | 91 | 100% | 19 | 100% | 14 | 100% | 124 | 100% |

individuals consented or declined. This form contained an area to indicate declination and the primary reason for declining. I sent a follow-up letter to individuals who did not respond within two weeks and an additional follow-up letter after four weeks. Copies of the follow-up letters are also in Appendix A. Additional copies of the survey, Informed Consent Form, and self-addressed, stamped envelope were included with the follow-up letters.

Out of the 153 people I contacted, 121 responded, for a 79% response rate. Of the people who responded, 29 initially agreed to participate. However, one person did not send me any writing samples. Since she had agreed to participate quite late in the study, I did not follow up with her to obtain the samples. As I stated above, a total of 28 people participated in the main study, or 18% of the people I contacted.

**The Survey**

The survey was designed to collect basic demographic data about the participants, including their position, grade, specialty, seniority, prior military service, level of education, academic major, writing courses taken, and level of professional military education. I later used this data to determine if there were any differences between groups of people on the frequency of topic sentence and active verb use. In her study of researchers and supervisors in a research and development organization, Barabas found no differences between good and poor writers with respect to educational level, major, writing classes taken, years of job experience, seniority in the company, or length of time under current supervisor (168, 169).

Another purpose of the survey was to measure writers' attitudes about writing, including topic sentences and active verbs, and about the organizational climate of their work place. Previous research by Brown and Herndl showed that writers who felt secure in their jobs used nominalizations less than writers who felt insecure (13). This part of the survey consisted of eighteen questions in Likert-scale format. The internal consistency of this portion of the survey, as indicated by KR20, was 0.70 (see Table 29).

Finally, there were three open-ended questions asking the writers to list the qualities they expected to find in good writing, the aspects of poor writing that bothered them, and the qualities their supervisors looked for in their writing. One purpose of these questions was to see how many people listed topic sentences or active verbs as important qualities of good writing. A second purpose was to identify what writers actually considered to be important qualities of writing.

**How I Collected the Writing Samples**

After receiving positive responses from individuals, I sent them the type of computer disk they had requested on their surveys with another cover letter, also at Appendix A. I requested that the participants copy onto the disk 5 to 10 unclassified, nonsensitive samples that represented their writing from the previous six months. Collecting only writing samples that were in electronic form made it much quicker and easier to analyze them. A total of 185 samples containing 84,480 words was submitted. The mean number of samples submitted was 6.6, and the median and mode were 6. The minimum and maximum were 2 and 12, respectively. The mean number of words per sample was 456.7 with a median of 241, a minimum

of 44, and a maximum of 4542 (the mode was not meaningful).

**The Pilot Study**

All six staff members of Air Force ROTC Detachment 860 at Utah State University agreed to participate in the pilot study. There were four officers and two enlisted members. They submitted 50 samples totaling 17,882 words. The mean number of samples per participant was 8.3 with a median of 8, a minimum of 3, and a maximum of 16. The mean number of words per sample was 380.5 with a median of 226, a minimum of 59, and a maximum of 3001.

The survey that I gave the pilot study participants evolved as the study progressed. As issues were raised during the interviews, I added items to the survey. For example, one participant mentioned that the grammar check in Microsoft® Word™ was a lifesaver for identifying passive verbs, so I added an item about that. The original survey I used is in Appendix A.

**Procedures**

**How I Analyzed the Writing Samples**

Upon receiving the writing samples, I analyzed them to determine which one was most appropriate for the experimental instrument. After making a backup copy of the file, I broke each sample down into T-units and clauses (both finite and infinitive, main and subordinate, embedded and embedding) and placed a coding matrix in front of each clause. I used Braddock's definition for T-unit, which was taken from Kellogg Hunt: "one main clause plus all subordinate clauses attached to or embedded within it" (Hunt qtd. in Braddock 289). I defined a clause as containing, as a minimum, a noun phrase and a verb phrase, or, in traditional terms, a subject and a predicate, respectively. This is the most commonly understood definition of a clause (see Alexander 1,2; Kaplan 207, 208; Keyser and Postal 30; Warriner 53). For sentence fragments, I either tried to join them to an adjacent sentence or, if a subject or verb was missing but was clear from the context, I supplied the missing words to form a complete clause. See Appendix B for an example of a writing sample and a scoring worksheet. I numbered each paragraph and subparagraph consecutively and typed the phrase "TS t-unit _____" before each one to have a place to enter the number

of the T-unit of the topic sentence, if there was one.

*Verbs*

After preparing the scoring worksheet, I identified the types of verbs in each clause, whether they were active voice, agentless passive voice, agentful passive voice, intransitive, or imperative (I explain *how* I did this in more detail below). Since a clause can have only one verb phrase, if more than one verb were in a clause, I counted each one as a fraction. Then I identified all the superfluous nominalizations in the sample, circling them and writing the number in each clause in the coding matrix. Lastly, I determined if each paragraph contained a topic sentence expressing the main idea of the paragraph. If I could identify such a sentence, I recorded the number of the T-unit where it was located; if I could not locate one, I indicated such with the symbol Ø. I also counted the number of T-units per paragraph to examine the relationship between paragraph length and topic sentence use.

Identifying active and passive verbs, nominalizations, and, especially, topic sentences was no easy task. This was true even for a grammatical feature such as passive voice, which I initially thought would be easy to identify. However, as Svartvik points out, "there is no agreement among grammarians as to what constitutes an English passive" (3). He developed a scale consisting of seven classes of passives ranging from those that could be transformed into the active to those that could not (138). Thus, he treated all verbs consisting of *be* + past participle as passive; he also included other verbs that can be substituted for *be*, such as *feel* and *appear*. (4). I counted as passive only those verbs that had a grammatically equivalent active counterpart. I included so-called "pseudo" passives that used a form of *get* in the place of *be*, such as in (1), although these were rare.

(1) She got promoted to major.

I did not count stative passives, which are actually used as adjectives, such as in (2). However, I would have counted (3).

(2) It will be unfunded.

(3) It will not be funded.

Another example of a stative passive that is less obvious is (4):

(4) The paint booths are located in building 100.

Although someone obviously placed the booths in the building at one time, that is not the intent of the sentence; it cannot be transformed into an equivalent active version:

(5) Someone located the paint booths in building 100.

In (4), *located* is an adjective modifying *booths*, not a verb. A good test of whether a past participle is used as an adjective or a verb is whether it can be modified by *very*; if it can, then it is used as an adjective, although just because it cannot, as in the case of *located*, does not mean it is a verb. An example that fits the test is:

(6) He was very interested in the class.

*Interested* in this case is clearly an adjective.

Determining if a verb was active or intransitive was sometimes difficult, especially if it was followed by a preposition, but I counted a verb as active only if it was passivizeable. For example, (7) can be turned into (8), although one would not be likely to make such a transformation:

(7) She meets with the commander regularly.

(8) The commander was met with regularly.

On the other hand, (9) cannot be turned into (10) and mean the same thing:

(9) They worked on the flight line.

(10) The flight line was worked on.

Another test I used was to ask if there was an answer to the question "who or what?" or did the prepositional phrase describe how, why, or where the action was done. "On the flight line" in (9) describes *where* the work was done, not *what* was worked on.

*Nominalizations*

Determining if a nominalization was superfluous was even more subjective than identifying active and passive verbs. As I pointed out above, many different kinds of nominalization have been identified, including verbs turned into adjectives, as in (11).

(11) This topography is **indicative** of fatigue crack propagation.

However, I used a fairly strict definition of nominalization, the same one used by the Air Force in *T&Q* for *smothered verb*, since Air Force writers *should* be expected to know it. Basically, if a nominalization in the subject, object, or complement position could be turned into the main verb while eliminating the original main verb, I considered it a superfluous nominalization. I included nominalizations that were part of prepositional phrases immediately following *be*, as in (12), but otherwise, I did not consider nominals buried in prepositional phrases, such as in (13).

> (12) If we can be of any **assistance**, please feel free to call.

> (13) Lockers are subject to **inspection**.

The Air Force term *smothered verb* is appropriate, since a useless nominalization indeed smothers the real verb. Following are additional examples of nominalizations I counted:

> (14) In the past, we accomplished **refuels** on days [sic].

> (15) A **plea** is made to have a goal setting and planning workshop.

> (16) The **focus** of this article will be the lack of communication issue.

Following Williams' guidance about useful nominalizations, I did not count them when

> 1. The nominalization is a subject referring to a previous sentence:
>
>> **These arguments** all depend on a single unproven claim. . . .
>
> 2. The nominalization names what would be the object of its verb:
>
>> I do not understand either **her meaning** or **his intention**.
>
> This is a bit more compact than, "I do not understand either **what she means** or **what he intends**."
>
> 3. A succinct nominalization can replace an awkward "The fact that":
>
>> **The fact that I denied what he accused me of** impressed the jury.
>> **My denial of his accusations** impressed the jury. . . .
>
> 4. Some nominalizations refer to an often repeated concept.
>> Few issues have so divided Americans as **abortion on demand**.  (33, bold in original)

*Topic Sentences*

After identifying nominals, determining if paragraphs contained topic sentences was the most difficult. I used the *T&Q* definition of topic sentence, which is "**the subject or controlling idea of the**

**paragraph, and it signals the kind of information needed to support it**" (41, bold in original). This definition differs slightly from other traditional definitions, such as "a one-sentence summary of the paragraph's main point" (Hacker 78), or "the most general statement" in the paragraph (Lindemann 155). The Air Force definition is looser than many definitions, depending on whether one focuses on "the subject" or the "controlling idea." During the pilot study I tried to identify controlling ideas, or propositions about a topic, but, not finding very many, I decided to relax the definition and look for the top-level statement of the subject from which all other sentences followed. I did this, not only because the Air Force definition allowed me to, but so I could not be accused of showing my bias against consciously composing topic sentences. However, in some two-T-unit paragraphs, it was difficult to determine which T-unit was subordinate to which.

In locating topic sentences, I tried to find T-units that

1. Summarized *most* points in the paragraph;

2. Did not contain specific details;

3. Indicated a pattern of organization.

However, I found that most topic sentences contained specific details, and very few indicated a pattern of organization, so I primarily used the first criterion.

Following the precedence set by Popken, if a paragraph contained only one T-unit, I did not count it as a topic sentence. Although Popken does not explain his rationale for this, my reasoning was that a one-T-unit paragraph could usually be combined with an adjacent paragraph.

Some writing samples presented a problem for identifying topic sentences since they did not contain traditional paragraphs. These samples were organized in checklist or bullet statement format. They included the genres that are known in the Air Force as the talking paper and the bullet background paper. Appendix B contains an example of a bullet background paper and how I broke it into paragraphs. Essentially, I treated a top-level heading or bullet statement as the start of a new paragraph. The first bullet statement of each "paragraph" was usually the topic sentence for that paragraph, assuming it was a complete T-unit.

*Inter- and Intrarater Reliability*

To determine the replicability of my method for analyzing the writing samples, I hired a research assistant whom I trained and then had analyze 30% of the 500 pages of samples for a total of 150 pages. This research assistant was a senior in the Communicative Disorders program at Utah State University and had completed several courses in English grammar, including one on the grammatical analysis of texts. First, I trained her using the instructions and flowchart in Appendix B. Next, we scored five pages together. Then she scored batches of approximately 30 pages each on her own. After she scored each batch, of which there were five, we compared our scoring clause by clause and paragraph by paragraph. If we disagreed on something, each of us explained our reasons for scoring it the way we did, and we discussed it until we reached consensus on it. We were able to reach consensus on all areas of disagreement. In addition, both of us rescored 10% of the worksheets, or 15 pages, to determine our intra-reliability scores. Figures 1 through 3 show our interrater reliability and both of our intrareliability scores for identifying nominals, verbs, and topic sentences, respectively, prior to reaching agreement. As can be seen, the mean agreement was 95% for nominals, 87% for verbs, and 80% for topic sentences. Somewhat surprising is the high figure for nominals, but this is partly explained by the fact that very few clauses contained them, so it was often simply a matter of determining that a clause did *not* contain any nominals. The lower figure for topic sentences was not surprising since identifying the exact T-unit containing a topic sentence, if there was one, was difficult. My research assistant and I noted that it was sometimes hard to identify topic sentences since we were not the intended audiences of the documents and did not have the background information the intended audiences would have had. The documents were taken out of context, making the validity of our analysis questionable. I discuss this issue in more detail below under Results where I compare what the writers' identified as their topic sentences with what I identified. Nonetheless, other researchers should be able to replicate my method fairly closely.

*The Pilot Study*

I used the same procedures to analyze the writing samples in the pilot study as in the main study, except I did not determine whether passive verbs were agentless or agentful, and I did not consider
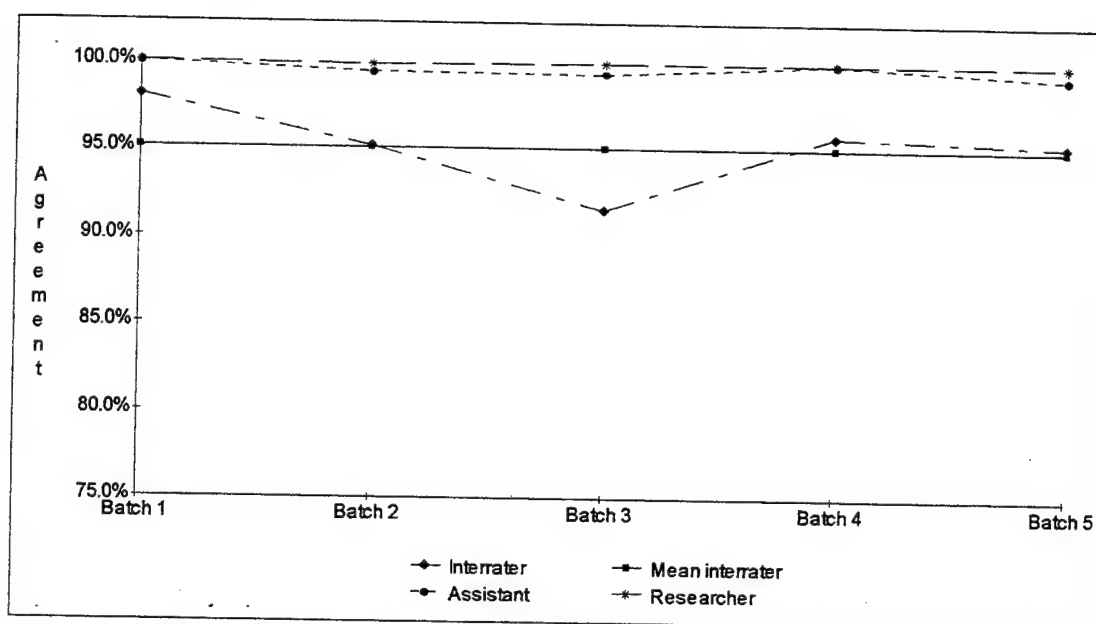
Figure 1. Inter- and Intrarater Reliability: Nominal Identification
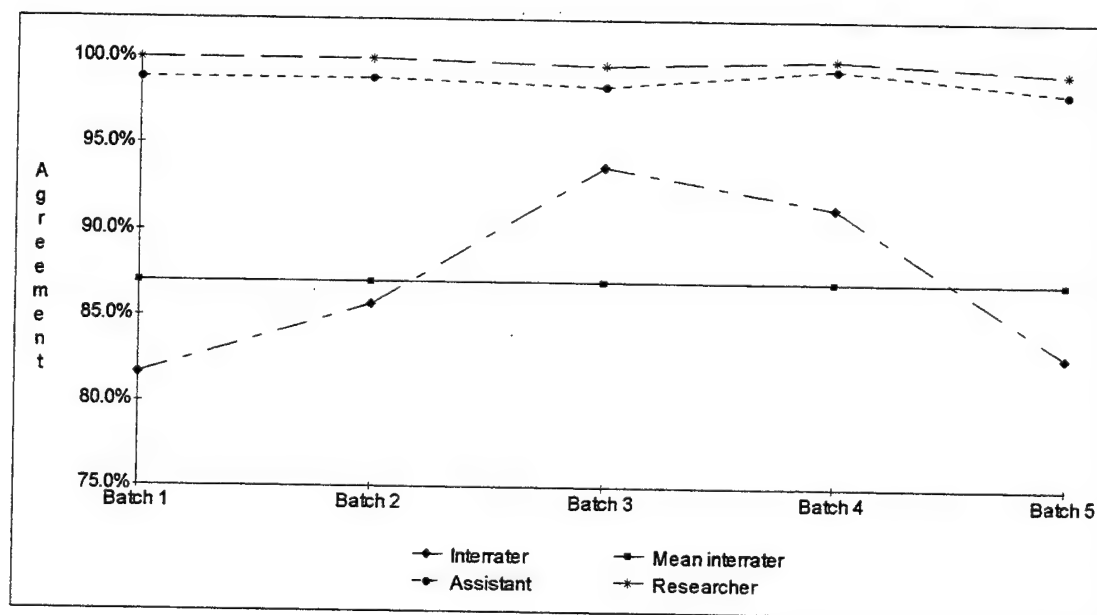


Figure 2. Inter- and Intrarater Reliability: Verb Identification
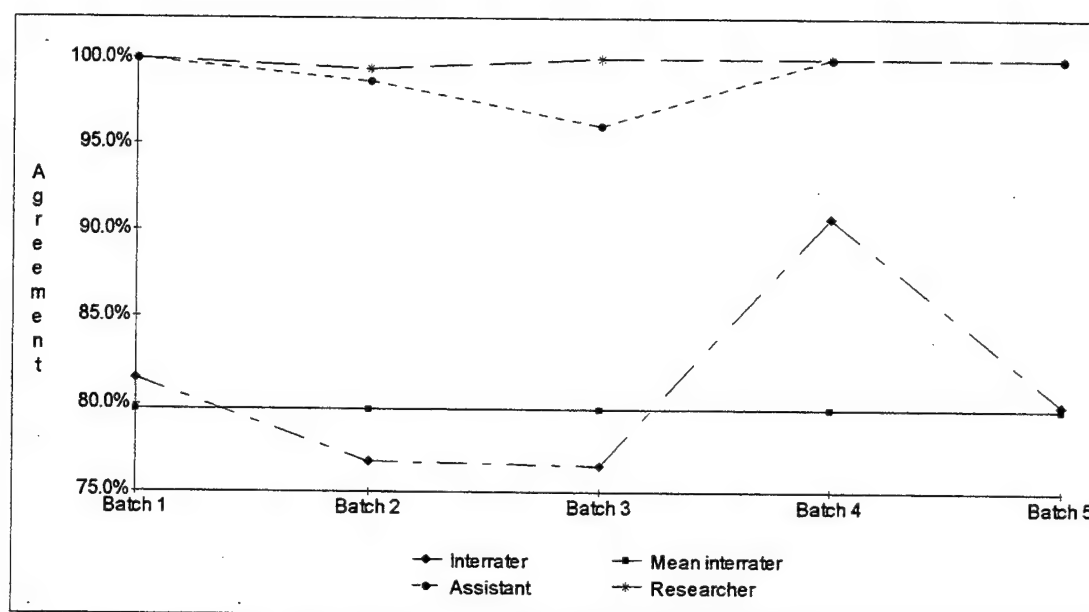
**Figure 3. Inter- and Intrarater Reliability: Topic Sentence Identification**

infinitive clauses. After completing the pilot study, it became clear that agency was an important factor in

people's deciding active versus passive. It was also clear that infinitive clauses constituted a significant

number of clauses and could be either active or passive. Additionally, infinitives can take subjects and

objects, just like finite verbs, and infinitive clauses behave like sentences, having an "internal subject-

predicate structure, like the sentences they are obviously related to" (Kaplan 264). I did not include

gerunds, however, since they behave like nouns. Subsequently, I rescored all of the pilot samples to include

agency and infinitive clauses.

## How I Created the Writing Instrument

The purpose of the writing instrument was to ascertain writers' reasons for using or not using

topic sentences, active or passive verbs, and nominalizations. It consisted of two parts: Part 1 dealt with

verbs and Part 2 dealt with topic sentences. On Part 1, six of the clauses from one of the writer's samples

had been rewritten to provide them with two to four choices for each clause, one of which was the original

clause. The other options were grammatical or stylistic variations of the original clause; for example, if the

original clause was in the active voice, the other options were written in the passive voice, one option

always containing an agent and, if possible, another option deleting the agent. Passive clauses were

rewritten into the active; if the original clause was agentless, I made a best guess as to who or what the agent was (sometimes I was wrong; I discuss what I did in the interviews in such cases below). Nominalizations were rewritten making them the main verb; additionally, if the original clause was active, an option was provided with the clause in the passive, and vice versa, without changing the nominalization into a verb. I rewrote only clauses which resulted in reasonable, grammatical sentences, not "grotesque curiosities," as Allen calls some sentences when they are transformed into the passive (qtd. in Svartvik 2). For Part 2, writers were given a copy of their original writing sample and asked to underline the topic sentences in each paragraph or, if a paragraph had no topic sentence, to indicate such.

I used three main criteria to select the writing sample that was the basis for the instrument:

1. It contained at least two active clauses;

2. It contained at least two passive clauses, one of which was agentful and the other agentless;

3. It contained at least two superfluous nominalizations.

These criteria are listed in order of importance so that, if a writer's samples did not meet the lower ranking criteria, I substituted a higher ranking criteria for them. For example, if a writer's samples contained only one nominalization, I substituted an agentful passive clause for the other nominal. I tried to keep the number of active and passive clauses fairly equal, so that if a writer's samples contained no nominalizations, I substituted one active clause and one passive clause. In all cases I was able to find a sample containing at least three active and three passive clauses. Appendix B contains an example of a writing instrument and the sample it was based upon.

In selecting the clauses to be used for the options, I had two additional criteria in mind: agency and topic-comment flow, since the literature showed both of these areas to be important in the selection of active versus passive voice. That is, I selected clauses I believed would elicit responses from writers as to the importance of naming the agent in a clause or of maintaining the flow of given and new information.

Two final criteria for sample selection related to genre and length. I tried to avoid samples that were in checklist or bullet-statement form, since they do not contain traditional paragraphs and thus do not contain traditional topic sentences. However, in one case I used a document containing both a letter and a checklist, and in another case, I used a form the writer had filled out; I chose these samples because, of all

the writers' samples, they best met the clause criteria. I also avoided documents that were overly long or overly short; I aimed for samples about four paragraphs in length. In one case, however, none of a writer's samples contained at least six clauses meeting the criteria, so I combined two similar documents. In another case, the sample best meeting the clause criteria was extremely long (40 paragraphs), so, for the topic sentence part of the instrument, I used only the first seven paragraphs, and, for the verb part, I used only the paragraphs containing the clauses I had modified.

## Problems with the Instrument

For the most part, the instrument accomplished my purpose of eliciting writers' reasons for the choices they made, especially concerning verbs. It was less effective at calling forth writers' reasons for using or not using topic sentences. If writers used a topic sentence, often they simply restated the topic sentence when asked why they used it; if they did not use a topic sentence, they often apologized for not doing so or stated that they probably should have used one. Questioning writers about their reasons made many of them defensive, even though I assured them I believed there were no right answers and was only interested in their ideas. For example, when I asked one woman when it would be acceptable to use the first person, she said, "This is internal minutes, so I could write it any way I want, really. No one would normally be critiquing how I write." Even though she laughed when she said it, I could tell she really did feel I was critiquing her writing. Not all writers felt this way, however. Many were eager to know what I thought of their writing and, when presented with different options for expressing something, they said, "I never thought of doing it that way. I'll have to go back and change my document." (By the way, I refrained from expressing my opinion about people's writing, but, when pressed, I told them how I thought the Air Force would expect them to write something.)

That some people would never have thought of expressing a statement in a certain way if they had not been presented with the option brought up another point: the validity of the instrument. Obviously, it is not realistic that writers would be given two or three choices for ways to write something, or even that writers would intentionally write something in several different ways and choose the best one. Several writers commented that, given the choice, they might have picked something other than what they wrote

when they wrote it, but while they were writing it, they simply did not think about it. With these reservations in mind, I still believe the instrument was effective at eliciting writers' reasons for a verbal or a nominal style. I also believe the comparison of what writers actually wrote with what they chose on the instrument is enlightening.

*The Pilot Study*

I made several false starts on the instrument for the pilot study before hitting on a method that seemed to work best. For the first participant's sample, if a paragraph did not contain a topic sentence, I tried to write one for it. Then I asked the participant to accept or reject each of the topic sentences, both the ones he had written and the ones I had written. If he accepted a topic sentence, I asked him his reason for doing so; likewise, if he rejected a topic sentence, I asked for his reason. This did not work very well because of the difficulty of writing a topic sentence when one did not exist. It was especially difficult to write a topic sentence when there was only one T-unit to begin with. Sometimes a paragraph contained so many disparate ideas that a topic sentence summarizing the whole paragraph would have been as long as the paragraph itself. For the second participant, I simply asked if he thought each paragraph contained a topic sentence and, if so, which sentence it was. I neglected to ask him his reasons for using topic sentences or not, so this did not yield much useful information. After the third participant, I settled on the method I used for the remainder of the study, which was to have them identify the topic sentences and explain their reasons for including them or not.

As far as the verbal style part of the instrument, I rewrote *all* of the transitive verb clauses and nominalizations for the pilot study. Since this resulted in as many as eleven items on the instrument, it made the interviews excessively long without really obtaining any additional information. To make the instruments somewhat consistent in length and still obtain a reasonable amount of information about writers' choices, I settled on six items for each instrument, as I described above.

## How I Conducted the Discourse-Based Interviews

My next step was to conduct discourse-based interviews with the writers of the samples using the strategy of Odell, Goswami, and Herrington. All interviews were conducted at the writers' work place

except for one, which was conducted in the officers' club because the participant worked in a secure area. I reminded the interviewees that I was a graduate student in English at Utah State University being sponsored by the Air Force Institute of Technology. I wore my Air Force uniform because I wanted to give interviewees the impression that, although I might not know their organization, I was an insider to the Air Force and could understand their situation. I did not want interviewees to be unduly influenced by the fact that I was an English major, so I echoed Odell and Goswami in reassuring them that all options were equally "correct," they were the experts in their organization, and I was "interested solely in the reasoning that led the writer to prefer one alternative to another" (206).

My basic strategy was to try to ascertain the writers' reasons for compliance or noncompliance with the two Air Force guidelines under study concerning the use of topic sentences and active verbs. According to discourse community theory, such reasons would be guided by the social conventions of the community. Therefore, I sought descriptive data in the interviews using open-ended questions. Odell, Goswami, and Herrington note that the reliability of interview data concerning cognitive processes has been questioned but that "[r]esearch on verbal reports as data confirms that informants can report reliably on such socially learned information, which has been tacitly transformed into functional plans they apply when writing" (228). Furthermore, while the responses of a single interviewee may be unreliable, the responses of interviewees within the same organization or job specialty tend to be consistent, while they vary with the responses of interviewees in different groups (Odell, Goswami, and Herrington 228).

First, I gave interviewees the verbal-style part of the survey to complete. Then I gave them the topic-sentence part to complete. I gave them in this order so the participants would not be influenced by the original wording of their documents while completing the verbal-style part. After they completed Part 2, I asked them why they did or did not include a topic sentence in each of their paragraphs, recording their responses on a tape recorder. Then I did basically the same thing on Part 1, asking them why they chose each option over the others. Next, I asked them the questions in Appendix C, which were based on their responses to the survey. For example, if they responded on the survey that they agreed they consciously tried to use topic sentences in their writing, I asked them why they tried to do that. I also clarified any responses which appeared to be inconsistent with responses to similar questions, responses that were

illegible, or responses that were left blank. For example, one participant indicated that he strongly agreed with the statement "I am comfortable with my ability to do my job," but he also marked "strongly agree" for the statement "I feel anxious about being able to perform my job." When I asked him about this apparent discrepancy, he said he interpreted the second statement to mean, "I am eager to perform my job." Although a few other people apparently interpreted the question this way, most did not. Finally, for those documents where it was not readily evident, I asked the writers who the intended audiences of the documents were and what types of documents they were. The spectrum of possible audiences was quite broad, including civilians outside the Air Force, other federal agencies, corporations, and foreign governments, in addition to other organizations within the Air Force. Thus, it was difficult to develop a meaningful coding scheme for audience, but I ended up coding audience as either internal or external to the writers' immediate organization. I defined immediate organization as the smallest administrative unit the writer was assigned to for personnel purposes, which in most cases was a squadron.

## How I Coded the Interviews

I transcribed the interviews and then coded the responses to the questions about the writers' reasons for using or not using topic sentences and active verbs according to Broadhead and Freed's five-part taxonomy of conventions (cultural, institutional, generic, personal, and situational). I coded the interviews with the help of the same assistant who performed the Interrater reliability check on the writing sample analysis. We initially began with the coding instructions in Appendix C; after going through a few interviews, however, it became apparent that additional subcategories could be used. Thus, I developed a more elaborate coding scheme, also in Appendix C, which my assistant validated. We worked together to code the interviews, since it was so subjective, despite having fairly detailed definitions and examples for each category. First we independently highlighted what we thought were the key words and phrases, and then we discussed which categories we felt they belonged to. In spite of the expanded coding scheme, we still found some responses that were difficult to categorize. In addition, some responses seemed to fit more than one category, so we marked all categories that applied to a response. We agreed on the coding for 100% of the responses, and other researchers working in pairs should be able to replicate our method.

## The Pilot Study

Since my procedures for designing the writing instrument evolved with the study, my procedures for conducting the interview also evolved with it. I previously explained how I changed the way I conducted the topic-sentence part of the instrument. The conduct of the verbal-style part of the interview did not change from the pilot to the main study. Initially I asked several more general questions in the pilot than I ended up with. The interview questions I used during the pilot study are in Appendix C. Questions 3, 4, and 5 were incorporated into the survey, while I eliminated questions 1, 6, and 8 as not immediately germane to the study. I asked for the name of the participants' immediate supervisor so I could get the supervisor's assessment of the participant's writing ability. The questions I asked the supervisors are also in Appendix C. Brown and Herndl and Barabas did this in their studies to try to isolate differences between good and poor writers. However, they also used this information to *select* their subjects. I did not do this in the main study for four reasons. First, I used a random sample to select my participants. I used a random sample because my study had to be approved by the Air Force, and I felt that a random sample would be looked upon more favorably than a personal contact sample. Second, a random sample also has greater statistical power than a nonrandom one. Third, I had no way to contact people at Hill—no names or phone numbers—and even if I had access to Hill's 16,000-name personnel directory, I would not have known where to start, without resorting to a random sample. Fourth, the two supervisors I talked to in the pilot study seemed uncomfortable assessing their employees' writing, even though I knew everyone in the detachment. I believed that most supervisors at Hill, to whom I would be a complete stranger, would view my questions as intrusive. This method seems to be more appropriate in ethnographic studies, such as that done by Brown and Herndl.

# CHAPTER 4

## RESULTS AND DISCUSSION

### Overview

The following results of the interviews, surveys, and writing sample analyses I conducted are organized according to the objectives presented in Chapter 1:

1.  To what extent do Air Force writers produce writing that conforms to the Air Force's guidelines? In particular, to what extent do Air Force writers use topic sentences and write in a verbal style?

    a.  Do writers conform to the writing guidelines more when writing to certain kinds of audiences or using particular genres of writing?

    b.  Do some groups of writers (e.g., based on sex, rank, specialty, education) conform to the writing guidelines more than other groups?

2.  How do writers' stated preferences concerning the writing guidelines compare to their actual writing practices?

3.  What reasons do writers give for complying or not complying with the Air Force's guidelines?

    Each objective is further subdivided into two main areas: topic sentences and verbal style. Results of statistical analyses are generally presented first and then are followed by a discussion of the significant results. While some results were statistically significant, not all results were of any practical significance. For example, if there were significant differences between groups classified according to age, while it might be interesting, it is not very useful since peoples' age cannot be changed, nor can people be treated differently based on their age. I will attempt to highlight those results which may be useful for pedagogical or policy-making purposes in the next chapter. Obviously, in a study like this of such broad scope, where many different variables were examined, there were numerous nonsignificant results. I make no attempt to explain all of them but will point out a few where I had anticipated significant results and found none, or where I expected none and my expectations were confirmed.

## Objective 1.  The Extent to Which Air Force Writers Use Topic Sentences

## and Write in a Verbal Style

**Topic Sentences**

Table 4 contains the means and standard deviations for variables pertaining to topic sentences, including their frequency, location in paragraphs, length of paragraphs, number of paragraphs, and frequency of headings.

About half of the paragraphs contained topic sentences.  A meta-analysis using the chi-square statistic showed significant differences in the frequency of topic sentences between my study and previous studies.  (Throughout this chapter I use $p \le 0.05$ as the level of statistical significance.  See Appendix E for

**Table 4.  Means for Variables Related to Topic Sentences (Main Study)**

| Variable | Mean | Std. Dev. | N |
|---|---|---|---|
| Percentage of Paragraphs with Topic Sentences | 50.66 | 31.35 | 185 |
| Percentage of Topic Sentences in T-unit 1 | 81.46 | 29.36 | 159 |
| Percentage of Topic Sentences in T-unit 2 | 8.09 | 17.73 | 159 |
| Percentage of Topic Sentences in T-unit 3 | 5.89 | 18.40 | 159 |
| Percentage of Topic Sentences in T-unit 4 | 2.03 | 10.29 | 159 |
| Percentage of Topic Sentences in T-unit 5 | 0.94 | 8.84 | 159 |
| Percentage of Topic Sentences in T-unit 6 & Up | 1.59 | 11.41 | 159 |
| Number of Paragraphs per Document | 6.17 | 7.71 | 185 |
| Total Number of Paragraphs | - | - | 1330 |
| Mean Length of Paragraphs in T-units | 4.28 | 3.41 | 185 |
| Length of Paragraphs with No Topic Sentence | 4.70 | 6.24 | 185 |
| Length of Paragraphs with Topic Sentence | 4.64 | 2.06 | 159 |
| Percentage of Paragraphs with Headings | 23.56 | 36.51 | 185 |
| Percentage of Headings with No Topic Sentence | 71.04 | 29.99 | 62 |

an explanation of the statistical tests and terms used.) These studies are summarized in Table 5.

One possible reason for the significant differences among studies is that Braddock looked at articles in prestigious periodicals, while Freisinger and Petersen, Popken, and I all looked at on-the-job writing. Freisinger and Petersen's results are very similar to mine, while Popken found significantly fewer topic sentences. The question that might be asked is why Popken's results are so much different? The types of writing Popken examined were fairly similar to what I looked at, consisting of letters and reports. Perhaps the difference lies in our methods for identifying topic sentences. As I explained in Chapter 3, I used a rather loose definition of topic sentence, compared to traditional definitions: the subject or controlling idea of the paragraph. Popken, however, defined a topic sentence as "the surface manifestation of an element at the 'top' (or "macro') level in the semantic hierarchy of a paragraph . . ." (50). While I could just as easily have used this definition, his application of it may have been more stringent than I would have used. As an example, he provides a paragraph beginning with the topic sentence, "There are several reasons for the federal government's inability to stop illegal drug smuggling" (50). The paragraph then goes on to give several reasons. I do not dispute that this example is a topic sentence, but if Popken expected all of his topic sentences to be so obvious, then that probably explains why he found fewer topic sentences than I did.

Another significant difference that can be seen in Table 4 is in the frequency of topic sentences in

**Table 5.  Frequency of Topic Sentences in Four Studies**

| Study | Number of Paragraphs | Percentage of Topic Sentences |
|---|---|---|
| Braddock (1974) | 889 | 37% |
| Freisinger & Petersen (1981) | 151 | 55% |
| Popken (1989) | 700 | 32% |
| Riggle (this study) | 1330 | 51% |

chi-square = 55.22        4 degrees of freedom (D.F.)        $p < 0.001$

paragraphs with headings: in paragraphs with headings, 75% *did not* have topic sentences. The chi-square was 61.821 with one degree of freedom ($p < 0.001$). It appears that headings took the place of topic sentences, as Popken suggests (53). In most cases, including a topic sentence as well as a heading would have been redundant, assuming the heading was specific enough. One of my participants, C16, remarked how the heading "General Information" in one of his documents was not a satisfactory replacement for a topic sentence. In many cases, however, participants explained that one of their reasons for not including a topic sentence in a paragraph was because the paragraph contained a heading. Some paragraphs contained both a heading and a topic sentence, but the number of such cases was low. Most headings occurred in documents with specialized purposes and formats, such as acquisition or planning documents, where the predictability of the structure reduced the need for topic sentences.

An additional significant difference, which is not shown in Table 4, was in the frequency of topic sentences in first and last paragraphs: first paragraphs were twice as likely to have a topic sentence as last paragraphs. This is shown in Table 6. One possible reason for this difference was that it was more critical for writers to include a topic sentence in the first paragraph, since it usually introduced the topic of the whole document, whereas the last paragraph often contained only the point of contact for the document and thus did not require a topic sentence.

Another finding from Table 4 was there were significant differences in the placement of topic sentences: The first T-unit was 10 to 80 times as likely to have a topic sentence as T-units 2 through 6. To determine the statistical significance of this, I calculated a chi-square for T-units 1 through 5. I used only the first five T-units since the mean paragraph length was about five T-units. If the expected probability of a topic sentence occurring in any of the first five T-units were equal—that is, 20%—then the chi-square is

**Table 6. Frequency of Topic Sentences in First and Last Paragraphs**

| Paragraph | Percentage | N | Chi-square | D.F. | p |
|-----------|-----------|-----|-----------|------|----------|
| First | 61.6 | 185 | 9.994 | 1 | 0.0016 |
| Last | 29.7 | 185 | 30.405 | 1 | < 0.0001 |

1540.077 with 4 degrees of freedom ($p < 0.001$). My findings appear to correspond closely to Freisinger and Petersen's findings of 89% of topic sentences in the first T-unit (299), while they differ from Braddock's findings of 47% in the first T-unit (299). Of course, part of this latter difference might stem from the fact that Braddock excluded paragraphs less than four T-units in length from his calculations. Another major difference is that he was looking at professionally written articles from major periodicals. At any rate, it appears that when Air Force writers used topic sentences, they did tend to put them in the first sentence, just as the textbooks suggest, although I do not know that writers did this because of the textbook advice. Placing the general idea of the paragraph in the first T-unit may seem like the most natural thing to do. However, there were notable exceptions. One writer explained that she provided background information first and stated her bottom line last. Another writer did the same thing, explaining that she wanted readers to know the background information that led to her conclusions. But, for the most part, when writers included topic sentences, they put them in the first T-unit.

Finally, there appears to be a relationship between paragraph length and topic sentence frequency, although based on my results, it is difficult to interpret. To determine this relationship, I placed each document into one of three categories based on its frequency of topic sentences: low, medium, and high. I did this by dividing the 185 samples into three fairly equal groups; the break point between the first and second group was 33.3%, and the break point between the second and third group was 60.0%. Then I ran a $t$-test for paired samples between the means of the lengths of paragraphs with and without topic sentences for each of the three groups (low, medium, and high). The results of these tests are in Table 7.

There was no significant difference in length for samples with a low frequency of topic sentences. This makes a certain amount of sense, since the number of topic sentences in the documents was small to begin with, and there was little variation in paragraph length. Less clear was the difference between medium and high samples. For samples with a topic sentence frequency in the middle range, paragraphs without topic sentences were significantly shorter than those with topic sentences. On the other hand, for samples in the high range, no-topic-sentence paragraphs were significantly longer than topic-sentence paragraphs. This difference was confirmed somewhat by a Kruskal-Wallis one-way analysis of variance (ANOVA) between topic sentence category and no-topic-sentence paragraph length, as shown in Table 8.

**Table 7.** *t*-tests for Mean Lengths of Paragraphs with and Without Topic
Sentences

| Topic Sentence Category | Topic Sentence? | Mean Length | t-value | D.F. | 2-tail p |
|---|---|---|---|---|---|
| Low | | | -0.98 | 37 | 0.331 |
| | No | 3.6 | | | |
| | Yes | 4.5 | | | |
| Medium | | | -7.80 | 56 | < 0.001 |
| | No | 2.4 | | | |
| | Yes | 4.9 | | | |
| High | | | 2.20 | 63 | 0.032 |
| | No | 6.7 | | | |
| | Yes | 4.5 | | | |

**Table 8. Kruskal-Wallis ANOVA of Topic Sentence
Frequency and Paragraph Length**

| Paragraphs | Chi-square | D.F. | p |
|---|---|---|---|
| No Topic Sentence | 13.882 | 2 | 0.0010 |
| Topic Sentence | 1.336 | 2 | 0.5127 |
| All | 5.050 | 2 | 0.0801 |

Note, however, that there were no significant differences between categories for topic-sentence paragraphs

and paragraphs overall. A parametric one-way ANOVA confirmed that there were significant differences in

length for paragraphs without topic sentences, as indicated by Table 52 in Appendix D. The Bonferroni

multiple comparison test showed that the principal difference lay between the medium and the high

categories; in documents with an average number of topic sentences, paragraphs with no topic sentences

were shorter than in documents with a high number of topic sentences.

Popken found a strong correlation ($r^2 = 0.8396$) between topic sentence frequency and paragraph length: as paragraph length increased, so did topic sentence frequency (52). The shorter paragraphs for the medium group in Table 7 make sense in light of this, but the longer lengths for the high group are more difficult to explain. Initially, I thought that the types of documents they were in might have something to do with it, since Popken also found that letters contained shorter paragraphs than reports (53). To determine whether this was the case, I ran a two-way ANOVA with genre and topic sentence category but obtained no results due to empty cells in the matrix. An examination of the types and numbers of documents in each category did not reveal any major differences. Both the medium and high groups consisted of similar types and numbers of documents. The explanation might actually lie in the differences between writers of the documents. I discuss these differences under Objective 1a below.

Table 9 contains the means for variables related to topic sentences for the pilot study. Since they did not differ significantly from the main study and the sample sizes were so small, results for all subsequent tests pertaining to topic sentences are only for the main study.

**Verbal Style**

Table 10 contains the means and standard deviations for variables pertaining to verbal style, including the total number of clauses in the corpus, the mean number of clauses per document, and the frequency of each type of verb. Frequencies for active and passive verbs are given both as percentages of all clauses and of transitive clauses; the latter are labeled as such.

The ratio of passive to active verbs was approximately 1 to 2, which was not significantly higher than the 1 to 3 ratio Freisinger and Petersen found in their small sample of business writing (chi-square = 0.888, D.F. 1, p > 0.10). In other words, while the number of active verbs in Air Force writing was high, it was not much higher than similar kinds of writing. While the passive-to-active ratio might be higher than the Air Force desires, it is typical of on-the-job writing.

Agentless passives outnumbered agentful passives 8 to 1; only 11% of all passives were agentful, which was about half of what Svartvik found in his corpus (141). With agentful passives occurring so

**Table 9. Means for Variables Related to Topic Sentences (Pilot Study)**

| Variable | Mean | Std. Dev. | N |
|---|---|---|---|
| Percentage of Paragraphs with Topic Sentences | 50.04 | 33.44 | 50 |
| Percentage of Topic Sentences in T-unit 1 | 80.97 | 31.74 | 41 |
| Percentage of Topic Sentences in T-unit 2 | 12.23 | 30.74 | 41 |
| Percentage of Topic Sentences in T-unit 3 | 2.40 | 8.91 | 41 |
| Percentage of Topic Sentences in T-unit 4 | 2.13 | 8.80 | 41 |
| Percentage of Topic Sentences in T-unit 5 | 0.52 | 2.68 | 41 |
| Percentage of Topic Sentences in T-unit 6 & Up | 1.75 | 8.08 | 41 |
| Total Number of Paragraphs | - | - | 180 |
| Number of Paragraphs per Document | 3.76 | 4.42 | 50 |
| Number of T-units per Document | 18.82 | 28.65 | 50 |
| Mean Length of Paragraphs in T-units | 5.82 | 5.98 | 50 |
| Length of Paragraphs with Topic Sentences | 5.43 | 5.10 | 41 |
| Length of Paragraphs with No Topic Sentences | 5.63 | 5.98 | 50 |
| Percentage of Paragraphs with Headings | 11.98 | 30.00 | 50 |
| Percentage of Headings with No Topic Sentence | 74.12 | 33.22 | 8 |

infrequently, they might be stylistically marked, as Rodman suggests for active verbs in scientific research reports. I discuss writers' reasons for using both types of passive verbs below under Objective 3.

As far as nominals were concerned, I had nothing from the literature to compare their frequency with. Approximately 1 out of 14 clauses in this study contained a superfluous nominalization. With a mean number of clauses per document of 35, this translates to two or three nominals per document, which does not seem excessive. As with agentful passives, nominals might be stylistically marked, since they occurred so infrequently. I discuss writers' reasons for using nominals below.

Descriptive statistics for variables related to verbal style from the pilot study are provided in Table 11. Again, since the means for the pilot study did not differ significantly from the main study and the

**Table 10.  Means for Variables Related To Verbal Style**

| Variable | Mean | Std. Dev. | N |
|---|---|---|---|
| Total Number of Clauses | - | - | 6467 |
| Number of Clauses per Document | 34.96 | 45.87 | 185 |
| Percentage of Active Verbs | 46.01 | 17.29 | 185 |
| Percentage of Agentless Passive Verbs | 18.22 | 13.63 | 185 |
| Percentage of Agentful Passive Verbs | 2.16 | 4.11 | 185 |
| Percentage of Intransitive Verbs | 26.81 | 14.62 | 185 |
| Percentage of Imperative Verbs | 6.80 | 12.00 | 185 |
| Percentage of Transitive Verbs | 66.39 | 15.66 | 185 |
| Percentage of Transitive Active Verbs | 69.46 | 20.27 | 185 |
| Percentage of Transitive Agentless Passive | 27.23 | 20.31 | 185 |
| Percentage of Transitive Agentful Passive | 3.30 | 6.24 | 185 |
| Percentage of Nominals | 7.13 | 9.70 | 185 |

number of cases involved was so small, in the remainder of this section I report only the results for the main study.

## Objective 1a.  Writers' Conformity to the Writing Guidelines When Writing to Certain Kinds of Audiences or Using Particular Genres of Writing

### Topic Sentences

Other characteristics of the documents besides paragraph length or position might also be factors in the frequency of topic sentences, primarily the genre and audience of the documents.  For example, Popken found significant differences in topic sentence frequency between letters and reports (52), and Brown and Herndl found that writers tended to use nominalizations more with higher ranking audiences than with lower ranking audiences (17).  I would expect to find more topic sentences in documents written to higher ranking audiences.  As participant M6 explained, "The higher up they are, the less they might

Table 11. Means for Variables Related To Verbal Style (Pilot Study)

| Variable | Mean | Std. Dev. | N |
|---|---|---|---|
| Total Number of Clauses | - | - | 1629 |
| Number of Clauses per Document | 32.58 | 58.06 | 50 |
| Percentage of Active Verbs | 54.98 | 17.16 | 50 |
| Percentage of Agentless Passive Verbs | 8.30 | 11.19 | 50 |
| Percentage of Agentful Passive Verbs | 0.64 | 2.13 | 50 |
| Percentage of Intransitive Verbs | 28.07 | 15.05 | 50 |
| Percentage of Imperative Verbs | 8.02 | 11.38 | 50 |
| Percentage of Transitive Verbs | 63.92 | 17.83 | 50 |
| Percentage of Transitive Active Verbs | 84.87 | 19.45 | 50 |
| Percentage of Transitive Agentless Passives | 12.18 | 14.34 | 50 |
| Percentage of Transitive Agentful Passives | 0.95 | 3.30 | 50 |
| Percentage of Nominals | 3.47 | 5.92 | 50 |

want to be reading the whole thing. So if you tell them the basics in the first sentence, then they can decide if they want to read all the details or not." Another participant, M7, confirmed this, explaining that "when you're dealing with an O-6 [colonel], she doesn't want to read a history book. In fact, she won't read it. She'll probably call you on the phone and say, "OK, what's the bottom—why did you send me all this trash? Tell me the answer." Unfortunately, there was not enough information in most documents to classify them by the rank of the audience, so I classified them as self, internal, external, or both internal and external.

Frequency tables for genre and audience are in Appendix D. Table 12 contains the results of the Kruskal-Wallis ANOVA for topic sentence frequency by audience and genre. Since it was statistically significant, I also used the parametric ANOVA to pinpoint which groups differed the most, the results of which are given in Tables 79 and 80. As indicated by the Bonferroni test, the most significant differences were between internal audiences and both, and between external audiences and both.

Table 12. Kruskal-Wallis One-Way ANOVA of Topic

Sentence Frequency by Audience and Genre

| Independent Variable | Kruskal-Wallis | | |
| --- | --- | --- | --- |
| | Chi-Square | D.F. | p |
| Audience | 11.608 | 3 | 0.0089 |
| Genre | 30.886 | 9 | 0.0003 |

Documents for internal and external audiences each contained about 52% topic sentences, while documents written to both types of audiences contained only 13% topic sentences. These differences were probably more a function of genre than audience, however. All of the cases where the audience was both internal and external were job descriptions. Although the differences among the other categories were not significant, there was a small but highly significant association between audience and genre, as measured by Goodman and Kruskal's symmetric lambda. If one knew the category of either audience or genre, there would have been a 16% proportional reduction in error (PRE) for guessing the other category (p = 0.00053).

The Bonferroni test indicates that the most significant differences in genre were between memos and job descriptions and between job descriptions and reports. Job descriptions had the lowest percentage of topic sentences, while reports had the highest. Memos had the third highest frequency, after personal letters, and the largest number of cases. Many of the other categories, such as personal letters and awards, probably were not significant because there were so few cases in them. These findings confirm those of Popken, who also found that reports contained significantly more topic sentences than letters (52). Popken suggests that reports tend to have longer paragraphs than letters because of how they are developed and how they will be read (54). Reports are often intended to be perused at length and thus contain longer paragraphs that are fully developed around a single point. Letters, on the other hand, are often meant to be glanced over quickly to get the main idea, so they contain shorter paragraphs loosely organized around a similar topic. Consequently, as I discussed earlier, Popken found that reports, with their longer paragraphs, were more likely to need topic sentences, while letters, with their shorter paragraphs, were less likely to

need topic sentences.

While I found significant differences in paragraph among different genres, the differences were not between memos and reports; in fact, the mean lengths of paragraphs for memos and reports were practically the same (3.6 and 3.9 T-units, respectively). The most significant difference I found was between memos and instructions, for which the mean paragraph length was 7.1 T-units. Instructions had a lower frequency of topic sentences than memos (35.8% and 55.4%, respectively), although the difference was not statistically significant on the Bonferroni test. The genre with the next longest paragraphs was the job description, with a mean of 6.4 T-units. Job descriptions had the lowest frequency of topic sentences, at 13.1%, which did differ significantly from both memos and reports. Extending the pattern to the genre with the third longest paragraphs, miscellaneous documents had a mean paragraph length of 5.5 T-units. Here the pattern breaks down, however, as miscellaneous documents contained slightly more topic sentences than the mean, with 52.2%. In fact, unlike Popken, I did not find a linear relationship between paragraph length and topic sentence frequency at all. Of course, he looked at only two genres, whereas I looked at ten, and some of my categories were rather coarse, such as the miscellaneous and acquisition documents categories. In addition, instructions and job descriptions might not have needed as many topic sentences because they contained a high percentage of headings, which served the preview function of topic sentences. Job descriptions had the highest frequency of headings at 89.2%, while instructions had the fourth highest at 46.9% (the mean was 23.6%). Memos, on the other hand, had the second lowest frequency of headings at 5.7%. The differences between memos and instructions and between memos and job descriptions were significant on the Bonferroni test. Thus, the documents I examined that contained longer paragraphs required fewer topic sentences than documents with shorter paragraphs because the former contained significantly more headings than the latter.

One other thing I noticed while analyzing writing samples for topic sentences was that writers were more likely to stick to a single topic in shorter paragraphs than in longer paragraphs. The longer a paragraph was, the more likely the writer was to go into more than one topic. Several longer paragraphs could easily have been divided into two or more shorter paragraphs, each with their own topic sentence. The following is an example from a memo of a longer-than-average paragraph (9 T-units) that contains at

least two topics:

> Fortunately the work has not been completed and there is still time to re-configure with a minimum of cost. However delays could prove costly. We request that the A-E respond as soon as possible. Also the hot water and chilled water piping systems were designed in long continuous loops. While this design will function it maximizes both the required pumping horse power and the amount of pipe needed. We intend to pipe it in a conventional branch system. If the A-E can see any objection to this please have them inform us. They can call [C14] at 777-2689 if they have any questions.

The author of this paragraph admitted that he probably should have broken it into two paragraphs before the sentence beginning, "Also the hot water." So perhaps another reason longer paragraphs tended to have fewer topic sentences was their writers had poor paragraphing skills.

## Verbal Style

In addition to examining whether audience or genre had an effect on topic sentences, I looked at whether these two factors had an effect on verbal style. Table 13 contains the results of the Kruskal-Wallis ANOVA for each component of verbal style by audience. Since the results for agentless passives and nominals were significant, I ran the parametric ANOVA, the results of which are in Tables 81 and 82. Although the $F$-test for agentless passives by audience was still significant, the Bonferroni test did not reveal any significant differences between any two types of audience. While documents written for writers themselves had the lowest percentage of passives and external documents the highest, these differences

**Table 13. Kruskal-Wallis One-Way ANOVA of Verbal**

**Style by Audience**

| Independent Variable | Kruskal-Wallis Chi-Square | D.F. | p |
|---|---|---|---|
| Agentless Passive | 7.768 | 3 | 0.0511 |
| Nominal | 7.654 | 3 | 0.0537 |
| Active | 6.964 | 3 | 0.0731 |
| Agentful Passive | 5.012 | 3 | 0.1709 |

were not statistically significant. The ANOVA of nominals by audience was not significant.

For the other characteristic of documents that I examined, genre, the results of the Kruskal-Wallis ANOVA are given in Table 14. The ANOVAs for actives, agentless passives, and nominals are in Tables 83 through 85. Although active verbs were significant, no two groups were significantly different on the Bonferroni test. Bullet papers had the lowest frequency of active verbs with 45%, but there were only two of them. Awards had the highest with 83%. That awards had such a high percentage of active verbs makes sense, since they were written about what someone did to deserve the award. The second highest percentage was in e-mail messages, with 82%. E-mail messages consisted of correspondence written specifically to be transmitted through the electronic mail medium as opposed to other types of documents, such as memos or reports, simply being sent through e-mail. I believe e-mail messages are evolving as a unique genre. They are a direct and informal form of communication, in contrast to acquisition documents, which are highly formalized. Acquisition documents had a 59% frequency of active verbs. Perhaps frequency of active verbs increases as level of formality decreases. Passive verbs might serve as a badge of membership in the military discourse community, a badge which is more likely to be shown in formal communication. Passive verbs might also be chosen for reasons for politics or authority. Individuals may wish to deemphasize personal responsibility for actions either because they speak for their organization as a whole or because revealing who was responsible might be embarrassing. Participants' reasons for using the

**Table 14. Kruskal-Wallis One-Way ANOVA of Verbal**

**Style by Genre**

| Independent Variable | Kruskal-Wallis Chi-Square | D.F. | $p$ |
|---|---|---|---|
| Nominal | 23.343 | 9 | 0.0055 |
| Agentless Passive | 18.235 | 9 | 0.0325 |
| Active | 17.894 | 9 | 0.0364 |
| Agentful Passive | 13.906 | 9 | 0.1257 |

passive voice as opposed to the active voice will be discussed at length under Objective 3 below.

There were also significant difference among types of documents on frequency of agentless passive verbs, particularly between acquisition documents and e-mail messages. Acquisition documents had a frequency of 40% passives, while e-mail contained only 15%. Acquisition documents were also the most highly nominalized, with 18% of clauses containing nominals. These documents were typical of bureaucratese, continuing a high percentage of passives and nominals. For example, in the following document, 20% of the clauses contained nominals and only 16.7% of the transitive verbs were active:

<div align="center">SOLE SOURCE JUSTIFICATION</div>

1. DESCRIPTION OF SUPPLIES/SERVICES: Disassembly of systems furniture work stations, temporary storage of same, and re-installation. During re-installation, upgrade of furniture electrical distribution system from six wire to eight wire service, and some minor repair, is required.

2. PROPOSED SOURCE:   Richins Office Design
                          479 South 700 East
                          Salt Lake City UT 84102
                          Tel 801 363-5775

3. SOLE SOURCE CIRCUMSTANCES: In order to complete asbestos abatement in building 1247, the systems furniture must be completely removed from the building and stored until asbestos abatement and a follow-on HVAC upgrade project have been completed, then re-installed. Upon re-installation, the furniture electrical system must be upgraded from six wire to eight wire configuration, and some minor repairs will be required. Richins Office Design is the local representative and authorized GSA dealer of Knolls System Furniture and components. Knolls is the successor to, and the only type compatible with, the older Westinghouse furniture in the building. Richins, as local Knolls representative and authorized GSA dealer, is the only source of supply for the electrical components for the upgrade, and the various parts involved in the minor repairs.

4. Due to the circumstances specified above, Richins Office Design is the only known source capable of satisfying the Government's requirements for this proposed acquisition.

There are several possible explanations for the high percentage of passives and nominalizations in the above document. As an acquisition document, it fulfilled a legal requirement to justify using a specific supply source instead of putting the source up for bid to all interested suppliers. Since it had to fulfill a legal requirement, it had to be couched in impersonal, formal language so that it did not appear that the requester was showing favoritism to the supplier. Once again, passive voice and nominalization are usually associated with formal language, since they omit the writer as the agent of the action. In fact, the example above omits all agents.

A second possible explanation for the nominal style in the above example is that it is also quite factual, describing an existing and a desired state of being. It explains what must be done to achieve the desired state of being and that Richins is the authorized local GSA dealer of the particular type of furniture involved. The document explains all of this in a neutral tone without ascribing agency to any of the actions. It does not even say that Richins must do the work; it merely says that Richins is the "only known source," raising the question, the only source known by whom? The author does not say, "Richins is the only source *I* know of." Here again he appears impersonal and impartial to fulfill a legal requirement.

The least nominalized type of documents were instructions (1%), e-mail messages (6%), miscellaneous documents (7%), and memos (7%). Instructions were very direct, since they explained how to do something such as operate a computer program. Since the focus was on the information and not the author, perhaps there was less of a need for the author to try to impress the reader with symbols of group membership, such as nominalization. E-mail messages, miscellaneous documents, and memos, while significantly different from acquisition documents, had the same frequency of nominals as the overall mean.

## Objective 1b. Comparison of Writers' Conformity to the
## Writing Guidelines by Group

For this objective, I examined whether there were differences in topic sentence frequency and verbal style between writers categorized according to objective and subjective variables. The objective variables I tested were highest level of professional military education, job specialty, academic major, highest level of education, grade, position, seniority, gender, prior military service for civilians, military status, and formal writing classes taken. Although Barabas did not find any differences between good and poor writers classified according to similar variables, it seemed to me that some of these variables might be related to whether writers used topic sentences or a verbal style. Each of these groups constituted a subculture within the Air Force discourse community and would have had their own writing conventions, such as the emphasis they placed on using topic sentences. For example, upper level managers might have emphasized topic sentences more than workers on the flight line, since the former had less time to read correspondence and therefore had a greater need to get the main idea quickly.

The objective variables used to form these groups were attributes of writers over which no one had any control, but knowing if there were differences could help supervisors, curriculum developers, and instructors make appropriate allowances. Currently, all military members are given the same writing instruction, regardless of their background or job specialty. In fact, people from different specialties are deliberately assigned to the same PME classes to provide a cross flow of ideas. I would not suggest that the PME schools segregate classes by specialty, for I agree that this cross flow is important. However, it would be useful for instructors to know if different specialties placed different emphases on the writing features the schools taught. For example, if scientists and engineers used the passive voice more frequently than other specialties, instructors could give them additional assistance in identifying the passive voice and understanding the rationale for using the active voice. In addition, instructors themselves would better understand the scientists' and engineers' rationale for using the passive voice. Frequencies for each of the demographic grouping variables are given in Appendix D.

Additionally, I looked at differences among writers grouped by subjective variables because previous research by Brown and Herndl suggests writers who feel insecure in their jobs or who lack proficiency in their jobs tend to use nominalizations more than writers who feel secure or are proficient. Job security is a function of two things: the work environment and the probability an employee will be promoted and retained. To assess these variables, I asked participants on the survey to rate how comfortable they felt with their ability to perform their jobs, how likely they felt their promotion and retention in the Air Force were, and how bearable the stress in their organization was. I calculated a mean rating for job comfort using the responses for questions 14 and 15 on the survey. I reversed the responses for item 15—that is, I changed a 1 to 5; 2 to 4; 4 to 2; 5 to 1; and left 3 the same. I calculated a mean rating for job security using items 19 and 20. I used the response for item 18 for job stress.

Related to job proficiency is writing proficiency. It seemed reasonable to suspect that more proficient writers would use positive features such as topic sentences and active voice more in their writing than less proficient writers, who would be expected to use negative features such as passive voice and nominalizations more than proficient writers. However, with the design of this study, I could not objectively measure writing proficiency. Instead, I asked participants to rate how comfortable they felt with

their writing ability (questions 16 and 17 on the writers' survey). I reversed the responses for question 17 as I did for number 15 and calculated a mean rating for writing comfort the same way I did for job comfort. Tables 39 through 42 in Appendix D show the frequencies for each response for variables measuring attitudes towards the job and towards writing.

**Topic Sentences**

One concern when comparing means across groups using ANOVA or the *t*-test is that the means be normally distributed. The histogram in Figure 4 shows the distribution of means for topic sentences. The distribution was not normal, although it was symmetrical. Since the distribution was not normal, first I ran the Kruskal-Wallis test, a nonparametric version of one-way ANOVA, with each independent variable. If the result was statistically significant, I then ran the parametric one-way ANOVA because post-hoc tests could be run with it to compensate for multiple comparisons. The multiple comparison test I used was the Bonferroni test. Table 15 contains the Kruskal-Wallis chi-square for each independent variable.
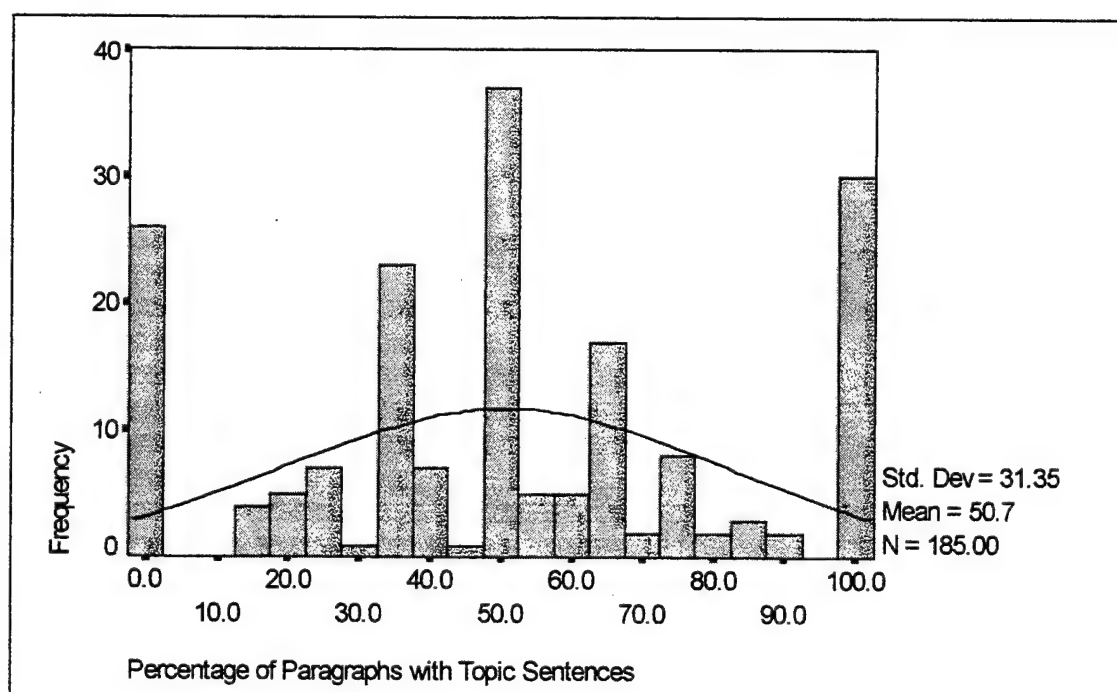


**Figure 4. Histogram of Percentage of Topic Sentences**

**Table 15. Kruskal-Wallis One-Way ANOVA of Topic Sentence**

**Frequency by Demographic Variables**

| Independent Variable | Kruskal-Wallis | | |
| --- | --- | --- | --- |
| | Chi-Square | D.F. | p |
| PME | 9.271 | 2 | 0.0097 |
| Education | 0.771 | 2 | 0.6802 |
| Gender | 0.479 | 1 | 0.4889 |
| Grade (civilian) | 1.929 | 3 | 0.5872 |
| Grade (military) | 3.013 | 3 | 0.3896 |
| Military Status | 0.768 | 1 | 0.3809 |
| Major | 0.739 | 3 | 0.8640 |
| Position | 2.524 | 3 | 0.4710 |
| Prior Military Service (for civilians) | 0.380 | 1 | 0.5324 |
| Seniority | 0.729 | 3 | 0.8665 |
| Specialty | 8.615 | 8 | 0.3758 |
| Prior Writing Course | 1.137 | 1 | 0.2864 |
| Job Comfort | 4.736 | 3 | 0.1922 |
| Job Security | 6.709 | 7 | 0.4598 |
| Job Stress | 2.625 | 3 | 0.4532 |
| Writing Comfort | 5.415 | 6 | 0.4918 |

The only variable for which there were significant differences between groups was PME. Topic sentence frequency varied according to whether writers had attended PME and, if so, what level they had attended. Table 53 is the ANOVA table for topic sentence frequency and PME. There is both good and bad news for the Air Force's PME schools: Writers who had attended Squadron Officer School (SOS) used topic sentences significantly more than writers who had attended Air Command and Staff College (ACSC), as indicated by the Bonferroni test. Additionally, writers who had not attended PME, mostly

civilians, also used topic sentences more than ACSC graduates, although this difference was not significant. Part of the difference between SOS and ACSC graduates might stem from grade differences. Most of the SOS graduates were captains, while the ACSC graduates were majors.

There was a moderate but significant association between grade and the reasons writers gave for using topic sentences or not. While captains and majors generally gave similar reasons, there were some important differences. O-3's were more likely to use audience as a reason than O-4's. Although I do not want to read too much into this, perhaps since they often wrote to their superiors, they had to be more concerned about getting their point across to their audience, while O-4's, who were not so far removed from their superiors, were not as concerned about accommodating their audience. On the other hand, O-4's were more likely than O-3's to use purpose or topic as their reasons. O-4's may have been more task oriented than O-3's, who may have been more concerned about pleasing their audience and making a good impression. In addition, in three cases O-4's said they did not think about their reasons, while none of the O-3's said this. Then again, the differences between SOS and ACSC graduates and between O-3's and O-4's could have been due to random variation.

**Verbal Style**

As I did with topic sentence frequency, I checked the distributions for each of the variables measuring verbal style before running any group comparison analyses. Since I was mainly interested in active and passive voice and nominals, I focused on the frequency of transitive active and passive verbs and nominals—that is, I excluded intransitive and imperative verbs from consideration. Figures 5 through 8 show the distributions for transitive active and passive verbs and for nominals. Once again, the distributions were not normal, so I first ran the Kruskal-Wallis test for each pair of independent and dependent variables and then followed up with ANOVA for pairs that were significant. The results of the Kruskal-Wallis tests are contained in Tables 16-19. Results are listed in decreasing order of significance. The results of the parametric ANOVAs are provided in Tables 54 through 57.

Since many of the same grouping variables were significant, the following discussion is arranged by grouping variable.
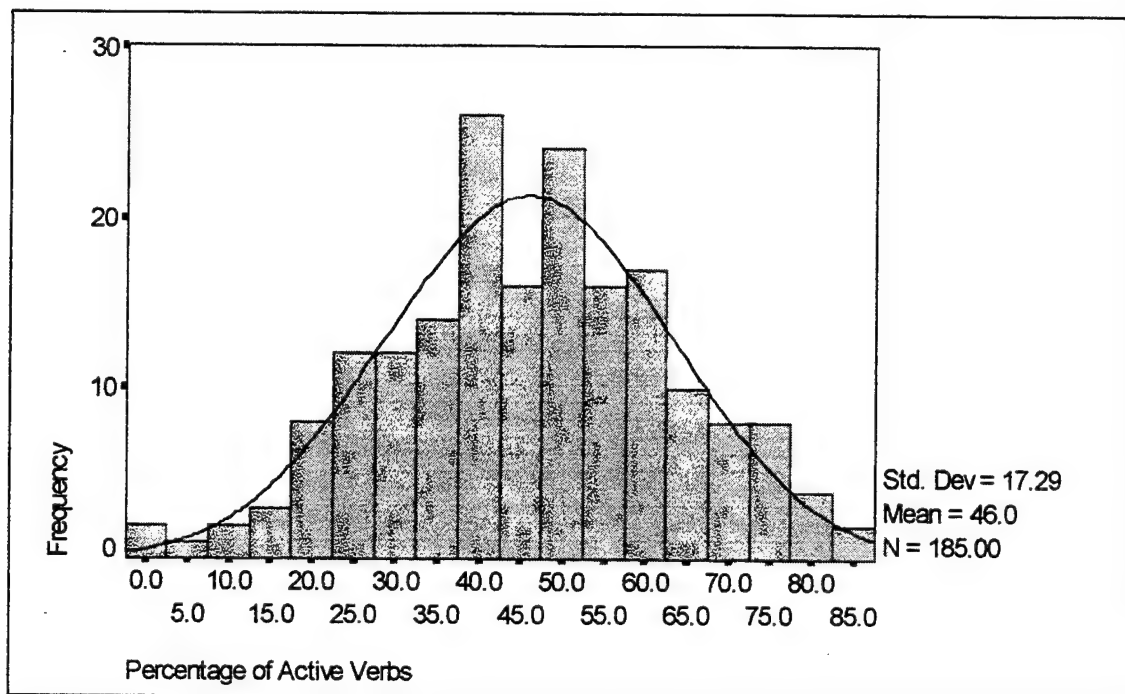
**Figure 5.  Histogram of Percentage of Active Verbs**
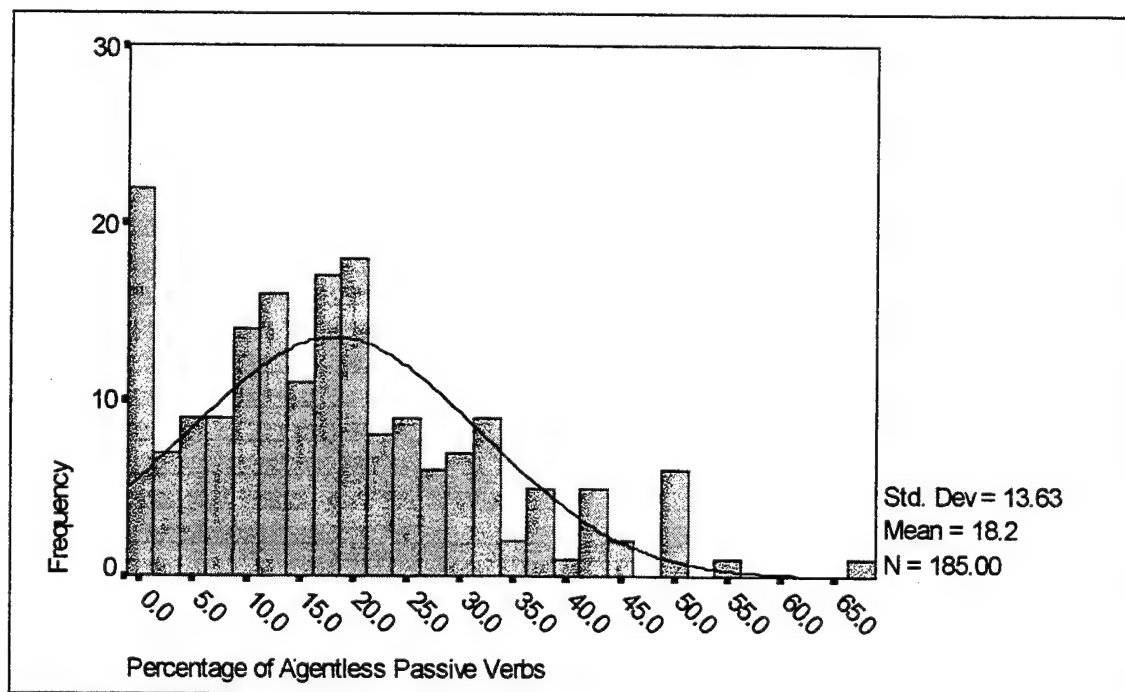


**Figure 6.  Histogram of Percentage of Agentless Passive Verbs**
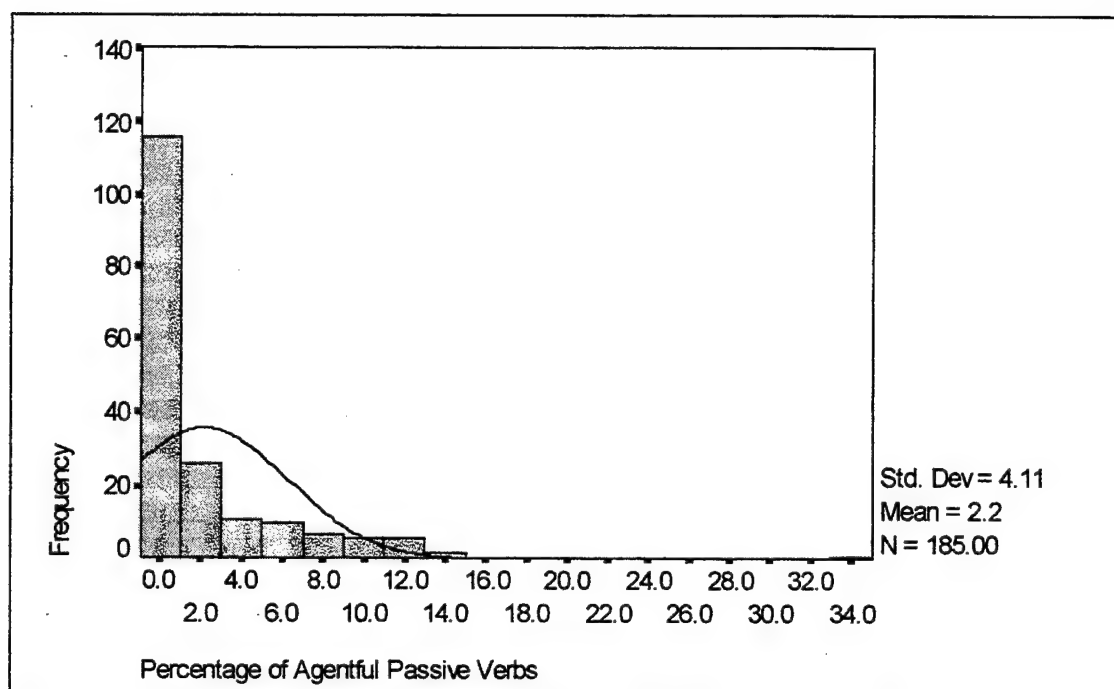
**Figure 7. Histogram of Percentage of Agentful Passive Verbs**
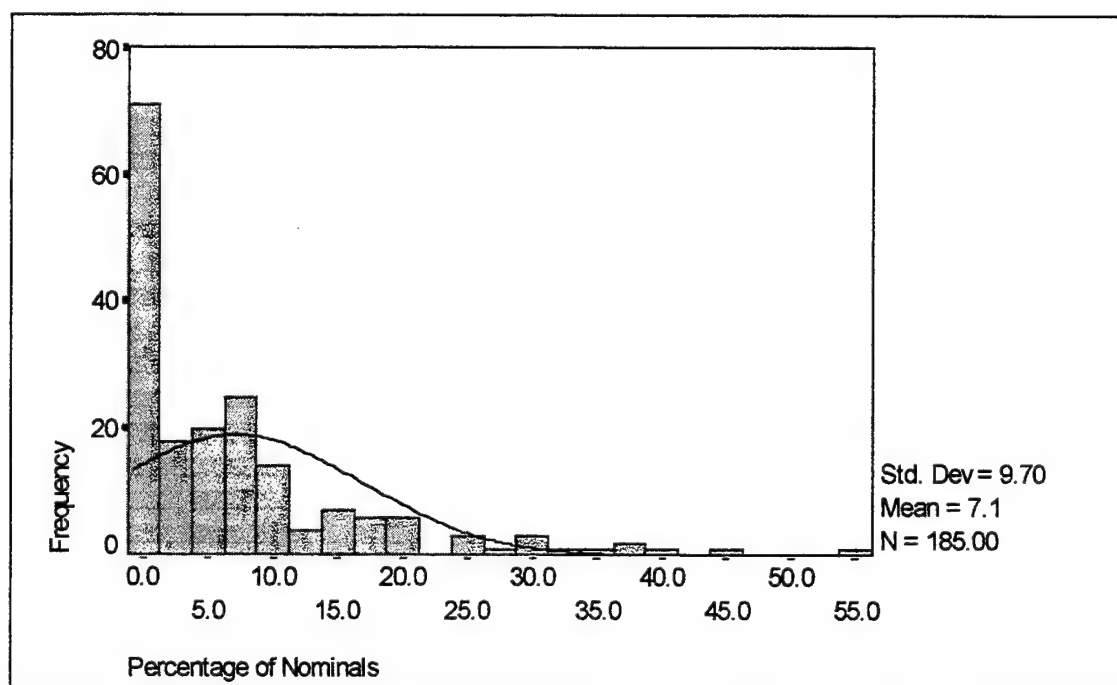


**Figure 8. Histogram of Percentage of Nominals**

*Job Specialty*

The most significant differences in active verb use occurred between scientists and all other specialties. The mean percentage of active verbs in scientists' samples was 33%, compared to the overall mean of 69%. This percentage was very close to the 34% active verbs Rodman found in scientific research reports and supports the traditional notion that scientific writing is predominantly in the passive voice.

Naturally, since the active-job specialty pair was significant, the agentless passive-job specialty pair was also significant, since it accounted for 90% of the other side of the transitive verb coin. Once again, scientists differed the most from all other specialties on passive verb use, having the highest frequency of agentless passives at 66%. In addition, operations specialists differed significantly from aerospace

**Table 16. Kruskal-Wallis One-Way ANOVA of Frequency of Active**

**Verbs by Demographic Variables**

| Independent Variable | Kruskal-Wallis | | |
| --- | --- | --- | --- |
| | Chi-Square | D.F. | *p* |
| Specialty | 33.021 | 8 | 0.0001 |
| Major | 13.615 | 3 | 0.0035 |
| Position | 6.417 | 1 | 0.0113 |
| Seniority | 10.450 | 3 | 0.0151 |
| Grade (military) | 8.357 | 3 | 0.0392 |
| PME | 5.227 | 2 | 0.0733 |
| Prior Writing Course | 2.311 | 1 | 0.1284 |
| Prior Military Service (for civilians) | 1.1993 | 1 | 0.1580 |
| Education | 3.669 | 2 | 0.1597 |
| Grade (civilian) | 3.750 | 3 | 0.2897 |
| Gender | 0.029 | 1 | 0.8656 |
| Military Status | 0.028 | 1 | 0.8684 |

**Table 17. Kruskal-Wallis One-Way ANOVA of Frequency of Agentless Passive Verbs by Demographic Variables**

| Independent Variable | Kruskal-Wallis Chi-Square | D.F. | p |
|---|---|---|---|
| Specialty | 32.935 | 8 | 0.0001 |
| Position | 8.466 | 1 | 0.0036 |
| Major | 12.719 | 3 | 0.0053 |
| Seniority | 8.559 | 3 | 0.0358 |
| Grade (civilian) | 8.139 | 3 | 0.0432 |
| Education | 6.143 | 2 | 0.0463 |
| Grade (military) | 7.846 | 3 | 0.0493 |
| PME | 5.467 | 2 | 0.0650 |
| Prior Military Service (for civilians) | 2.324 | 1 | 0.1274 |
| Prior Writing Course | 2.740 | 1 | 0.2579 |
| Military Status | 0.097 | 1 | 0.7552 |
| Gender | 0.077 | 1 | 0.7817 |

engineers, with the former having the lowest frequency of passives at 17%, and the latter having the second highest at 36%. The types of writing aerospace engineers did was similar to that of scientists, consisting mostly of report memos. The academic background of engineers and scientists was also similar, which is further supported by the ANOVAs for verb type and academic major discussed below. On the other hand, the academic background of operations specialists was completely different from that of scientists and engineers. While 100% of scientists and engineers had scientific or technical degrees, 60% of operations specialists had business or management degrees, and 40% had liberal arts degrees. As I will discuss below, these two groups had two of the lowest frequencies of passive verbs compared to science/technical degree holders, who had the highest.

**Table 18. Kruskal-Wallis One-Way ANOVA of Frequency of Agentful**

**Passive Verbs by Demographic Variables**

| | Kruskal-Wallis | | |
|---|---|---|---|
| Independent Variable | Chi-Square | D.F. | p |
| Prior Military Service (for civilians) | 9.434 | 1 | 0.0021 |
| Grade (civilian) | 12.510 | 3 | 0.0058 |
| Specialty | 17.013 | 8 | 0.0300 |
| Military Status | 3.438 | 1 | 0.0637 |
| Gender | 3.103 | 1 | 0.0781 |
| PME | 4.631 | 2 | 0.0987 |
| Prior Writing Course | 1.2797 | 1 | 0.2579 |
| Major | 3.110 | 3 | 0.3749 |
| Education | 1.534 | 2 | 0.4643 |
| Position | 0.191 | 1 | 0.6623 |
| Seniority | 1.028 | 3 | 0.7945 |
| Grade (military) | 0.772 | 3 | 0.8561 |

There were also significant differences in the use of nominals. Aerospace engineers again used them the most, with 11% of their clauses containing them; civil engineers used them the second most, in 10% of their clauses. Somewhat surprisingly, since they were technical specialists with training similar to aerospace and civil engineers, software engineers used them the least, in only 2% of their clauses. The difference seemed to lie in the types of writing these groups did. As I will explain below, acquisition documents had the highest frequency of nominals; 14% of the civil engineers' documents fell into this category, while none of the software engineers' did. In contrast, instructions had the lowest frequency of nominals; 22% of the software engineers' documents fell into this category, while none of the civil engineers' did.

**Table 19. Kruskal-Wallis One-Way ANOVA of Frequency of Nominals by Demographic Variables**

| Independent Variable | Kruskal-Wallis | | |
| --- | --- | --- | --- |
| | Chi-Square | D.F. | p |
| Specialty | 22.347 | 8 | 0.0043 |
| Seniority | 12.520 | 3 | 0.0058 |
| Major | 10.886 | 3 | 0.0124 |
| Grade (military) | 9.205 | 3 | 0.0267 |
| Grade (civilian) | 3.152 | 3 | 0.3687 |
| Education | 1.628 | 2 | 0.4432 |
| Prior Military Service (for civilians) | 0.290 | 1 | 0.5899 |
| Gender | 0.220 | 1 | 0.6393 |
| PME | 0.647 | 2 | 0.7236 |
| Position | 0.056 | 1 | 0.8128 |
| Military Status | 0.053 | 1 | 0.8181 |
| Prior Writing Course | 0.021 | 1 | 0.8862 |

The last transitive verb type, agentful passives, did not turn out to be significant under the parametric ANOVA. Since there were so few cases of it to begin with, it was more difficult to achieve statistical significance.

*Academic Major*

As I mentioned above, the results for job specialty correspond closely to the results of the ANOVAs of transitive verbs and nominals by academic major, which are given in Tables 57 through 60. The most significant differences in active and passive verb frequency were between people with scientific or technical degrees and those with business or management degrees. The mean percentage of active verbs for the former was 65%, while for the latter it was 78%, and the percentages of agentless

passives were 31% and 20%, respectively. These results further confirm that people trained in scientific or technical disciplines, such as chemistry or metallurgical engineering, are taught to avoid the first person and the active voice in their writing by using the passive voice. Concerning nominals, people with no degree used them the most at 15% of the clauses, while liberal arts and business degree holders used them the least, at 4% and 5%, respectively. People with no higher academic degree might have seen nominalization as a status symbol of professional sounding writing, as Brown and Herndl suggest for people who lack job proficiency. Nominalization is a hallmark of bureaucratic writing, and these people might have overnominalized to achieve membership in the military discourse community, even though the Air Force officially discourages it. All of these people were civilian employees, so, in addition to not having any formal writing training, they were unlikely to have attended any of the PME schools where they would have learned that smothering verbs is discouraged. Unless they read *The Tongue and Quill* on their own, they would not even know what a smothered verb was. In fact, 100% of the people with no degree said they did not know what a smothered verb was. As participant C12 said in my interview with him, "I don't know that I'd know what a smothered verb is. A smothered burrito, yeah. A smothered verb, no."

*Level of Education*

Although academic degree was an important discriminator for verbal style, except for agentless passives, level of education was not. The ANOVA table for education is in Table 61. Although education was still significant on the ANOVA, no two groups were significantly different on the Bonferroni test. However, those with less than a bachelor's degree used agentless passives the least at 18%, followed by those with a master's or higher at 24%, and those with a bachelor's used them the most at 30%. This difference was probably more a function of major, since 68% of those with a bachelor's had science/technical degrees, while none of those with an associate degree did. Academic major, then, appears to have been a better predictor of verbal style than level of education.

*Grade*

If specialty, academic major, and level of education form one related group of variables, then grade, position, and seniority form another. Grade and position both depend largely on seniority

(longevity). Was seniority, then, a better predictor of verbal style than grade or position? The ANOVA tables for grade are in Tables 62 through 66; where applicable, two tables are given: one for civilian, and one for military, since the two grade structures are not comparable.

For active verb use, while the ANOVA for military grades was still significant, no two grades were significantly different on the Bonferroni test. The lowest mean was 61% for second lieutenants (O-1's), and the highest was 78% for captains (O-3's), with the overall mean being 70%. For agentless passives, however, there was a significant difference between O-1's and O-3's. O-1's used agentless passives in 37% of transitive clauses; O-3's, on the other hand, used them half as much—18%. As officers increased in rank and seniority, then, their use of passive verbs decreased. Perhaps, like nominalizations for civilians without college degrees, overusing passive verbs served as a way for younger officers to become members of the military discourse community. By the time they were captains, they were full-fledged members of the community, so the passive voice no longer served as a status symbol for them. Alternatively, as officers literally gained responsibility through advancement in grade, perhaps they were less fearful of taking responsibility for their actions when it was appropriate, i.e., when they were speaking for themselves and not for their organization. Thus, they tended to use the passive voice less, since it can hide responsibility by omitting the agent.

Interestingly, PME attendance was not a significant factor in the decrease in passive use, even though 100% of O-3's had attended SOS. Although SOS graduates used agentless passives less than non-graduates, the difference was not significant. This should be cause for concern for the PME schools. If the writing instruction given in the PME schools did not result in significantly lower passive verb use for graduates, then the instruction could be assumed to be ineffective. Perhaps not enough time or attention is given to it in the schools, but it is more likely that other factors determine passive verb use, factors I will discuss under Objective 3.

As far as nominals were concerned, there was no clear pattern with the military grades. Majors (O-4's) used them the least at 3%, followed by O-1's at 4%, while first lieutenants (O-2's) used them the most at 14%. These differences were significant on the Bonferroni test. Clearly other factors were coming into play here, such as specialty or genre. The majority of O-2's writing fell into the memo and acquisition

document categories. Acquisition documents were highly nominalized; since, of the officers, only 0-2's wrote acquisition documents, this accounts for a large part of the discrepancy. Additionally, 60% of the O-2 clauses were written by aerospace engineers; as I have already discussed, aerospace engineers used nominals the most. Academic major does not appear to be a factor in this case, since most of the O-2's were science/technical majors, who did not use nominals significantly more than other majors.

For civilians, while no two grades were significantly different, there was a decrease in agentless passive use from GS-12 to GS-13 of 12 percentage points, although there was an equivalent increase from GS-11 to GS-12. The GS-12 group was the largest group, having written 58% of the clauses. The majority of the clauses written by GS-12's were written by civil engineers, followed by software engineers and aerospace engineers. I have already discussed how aerospace engineers used agentless passives significantly more than other groups. While civil and software engineers' means were not significantly different from the other groups, their clauses had the third and fourth highest frequency of passives, respectively. This probably explains the increase in passive clauses from the GS-11 to GS-12 grades.

Grade was a significant factor in agentful passive use by civilians, although no two grades were significantly different according to the Bonferroni test. GS-12's used them in 2% of clauses, while GS-13's and 14's used them in 8% of clauses. Apparently, when GS-12's used the passive voice, they preferred to leave the agent nameless. Part of the reason for this might be the type of writing they did, since most of them were engineers. Most of their writing consisted of memos to external audiences. Participants' reasons for choosing agentless passive over agentful will be explored under Objective 3.

*Position*

Another variable that is a function of seniority and job performance is position. I divided position into two categories: worker and supervisor. Becoming a supervisor usually depends on how long employees have worked in a position within an organization and how well they have performed their jobs. There were significant differences in both active and agentless passive verb use by position, as confirmed by the ANOVA results given in Tables 67 and 68.

Supervisors used active verbs more and agentless passive verbs less than workers did. Other

factors such as specialty or academic major did not clearly account for this difference. The majority of clauses for both groups were written by civil engineers and science/technical majors. The best explanation seems to be seniority; the longer people worked, they less they might have felt the need to use the status symbols of a bureaucratic culture, such as the passive voice. But was this really the case?

*Seniority*

The ANOVA's for verb type and seniority are shown in Tables 69 through 71. As it turned out, seniority was not the best predictor of verbal style. People with the most seniority (those in the 25½- to 35-year range) used active voice the least and agentless passive voice and nominals the most. People with the least seniority followed closely behind those with the most. Writers in the 5- to 25-year range used active verbs the most and passive verbs and nominals the least. The differences for actives and passives was significant, while those for nominals was not. Why would people with the most seniority have the least active verbal style, when supervisors and higher ranking people generally had the most verbal style? Clearly, not all employees with many years of service were supervisors. In fact, 68% of those with more than 25 years' service were workers. Additionally, 70% of those with less than 5 years' service were workers. Fifty-nine percent of the supervisors had between 5 and 25 years' service. My explanation is this: Junior employees did not have enough seniority to be supervisors, while senior employees who were not supervisors either had not performed well enough to become supervisors, or were in specialties where the options to become a supervisor were limited.

*Prior Military Service*

One final demographic variable I examined was prior military service. This variable applied only to civilian employees. I wanted to see if civilian employees who had previously served in the military—any branch, not just the Air Force—wrote differently from those who had no military service. Presumably they would have received some of the same training in writing as military participants, especially if they had served as officers. Prior military service was significant for agentful passive verbs on the Kruskal-Wallis test but not for ANOVA, as the shown in Table 72.

Since there were no significant differences between military members and civilians, there probably were no differences between civilians with and civilians without prior military service. If the writing instruction military members received were effective, I would expect there to have been differences. Since there probably were no differences, it appears that the additional training military members received made no difference in how they wrote. This is further supported by the fact that PME was not a significant factor on any variable measuring verbal style.

So far I have discussed differences between groups that can be classified fairly objectively based on grade, position, seniority, and so forth. I also examined differences between groups classified according to how participants subjectively rated themselves on four variables: job comfort, job security, job stress, and writing comfort. There were significant differences among groups classified according to these variables for several of the verb types. (See Tables 20 through 23 below for the results of the Kruskal-Wallis tests of each verb type and subjective grouping variable.) If these differences were in the direction expected, a simple instrument, such as my survey, could be devised to measure the variables, which could then be used to predict whether a person was predisposed to overuse nominals or the passive voice. Such an instrument could be administered at the PME schools to identify students who might need more assistance than others with these aspects of their writing style. Unfortunately, although there were significant differences on these variables, they were not good predictors of verbal style.

**Table 20. Kruskal-Wallis One-Way ANOVA of Frequency of Active Verbs by Subjective Variables**

| Independent Variable | Kruskal-Wallis | | |
| | Chi-Square | D.F. | p |
| --- | --- | --- | --- |
| Writing Comfort | 15.315 | 6 | 0.0179 |
| Job Stress | 8.2681 | 3 | 0.0408 |
| Job Security | 11.567 | 7 | 0.1158 |
| Job Comfort | 1.442 | 3 | 0.6956 |

**Table 21. Kruskal-Wallis One-Way ANOVA of Frequency of Agentless Passive Verbs by Subjective Variables**

| Independent Variable | Kruskal-Wallis | | |
| --- | --- | --- | --- |
| | Chi-Square | D.F. | p |
| Writing Comfort | 19.535 | 6 | 0.0033 |
| Job Stress | 6.902 | 3 | 0.0751 |
| Job Comfort | 4.607 | 3 | 0.2030 |
| Job Security | 9.418 | 7 | 0.2241 |

**Table 22. Kruskal-Wallis One-Way ANOVA of Frequency of Agentful Passive Verbs by Subjective Variables**

| Independent Variable | Kruskal-Wallis | | |
| --- | --- | --- | --- |
| | Chi-Square | D.F. | p |
| Writing Comfort | 11.208 | 6 | 0.0822 |
| Job Comfort | 5.888 | 3 | 0.1172 |
| Job Security | 6.731 | 7 | 0.4574 |
| Job Stress | 2.125 | 3 | 0.5469 |

*Job Comfort*

The results of the ANOVA of job comfort and nominalization are contained in Table 73. Job comfort, as it was measured on the survey, was a good predictor of nominalization, but it did not operate the way I expected. Excluding the undecided category, which was not significant, nominalization increased as job comfort increased. This seemed to contradict Brown and Herndl's finding that nominalization decreased as job proficiency increased. I surmise that my job comfort variable did not measure the same thing as Brown and Herndl's job proficiency variable. In my study, the participants rated their own job

**Table 23. Kruskal-Wallis One-Way ANOVA of Frequency**

**of Nominals by Subjective Variables**

| Independent Variable | Kruskal-Wallis | | |
| --- | --- | --- | --- |
| | Chi-Square | D.F. | p |
| Job Comfort | 22.788 | 3 | < 0.0001 |
| Writing Comfort | 32.887 | 6 | < 0.0001 |
| Job Security | 26.173 | 7 | 0.0005 |
| Job Stress | 3.573 | 3 | 0.3114 |

comfort, whereas in the Brown and Herndl study, the subjects' supervisors rated their job proficiency.

Assuming the inverse relationship between job comfort and nominalization was meaningful and not merely statistically significant, there is a possible explanation. As writers learned to perform their job, including how to write in their organization, they learned the specialized discourse of their community, including its jargon. Its jargon might have included many nominalized terms such as those used in the example of the Sole Source Justification. One way writers might have learned the jargon of the organization was by modeling their writing after that of more experienced writers. This modeling often probably took the form of using boilerplate—using previously written documents as templates by changing the specifics to fit the circumstances while retaining much of the language and format. Several of the writers I interviewed explained that they had simply copied someone else's document that had been successful in a similar situation.

*Job Security*

Another self-rated variable was job security. The ANOVA results for nominalization and job security are provided in Table 74. Once again, while the results were highly significant, they were not what I expected. As with job comfort, nominalization increased with job security ratings rather than decreasing as expected. People who rated their security a 1½ or 2½ had the lowest frequency of nominalization at 2% to 4%, compared to those who rated their security a 4 or 4½, who had nominals in 11% to 15% of their

clauses. Seniority might account for part of the discrepancy. One hundred percent of the participants who rated their job security low were in the group with 11 to 25 years of service; although they expected to be able to retire, they did not expect to be promoted further. This group had the lowest frequency of nominals. On the other hand, 75% of the clauses for people who rated their job security high were written by people with 0 to 10.5 years' service, a group of people who were second only to the high seniority participants for frequency of nominalization. Perhaps junior people overestimated their job security, while the more senior employees had a more realistic estimate of it.

*Job Stress*

The last variable I measured relating to the job was job stress. The ANOVA table for active verb frequency and job stress is Table 75. Differences in active verb frequency among groups on the job stress variable were not significant statistically on the ANOVA, indicating that the means for each group were not very different from each other. Like job comfort and job security, job stress, as measured on the survey, was not a good predictor of verbal style.

*Writing Comfort*

The writing comfort variable was a somewhat better predictor of verbal style than the job-related variables, at least for active and passive voice. The ANOVA tables for active verbs, agentless passive verbs, and nominals by writing comfort are Tables 76 through 78. Participants who rated their writing comfort a 2 had the lowest frequency of active verbs and the highest frequency of agentless passive verbs by far. Their mean percentage of active verbs was 19%, compared to 65% for the next closest group, those who rated their writing comfort a 2½. Active verb frequency increased up to the 3½ rating where it reached 80%, after which it dipped to 68% before finishing at 73% for the 5's. The pattern for agentless passives, naturally, was a mirror image of the actives, the frequency decreasing until the 3½ rating, after which it increased and leveled off. Figure 9 is a graph depicting the relationship between active verb frequency and writing comfort. All of the samples in the writing comfort 2 category were written by a single scientist, which helps explain the high frequency of passive verbs. Thus, this apparently significant result might be an anomaly. The same was true for nominals; while the differences were significant, there
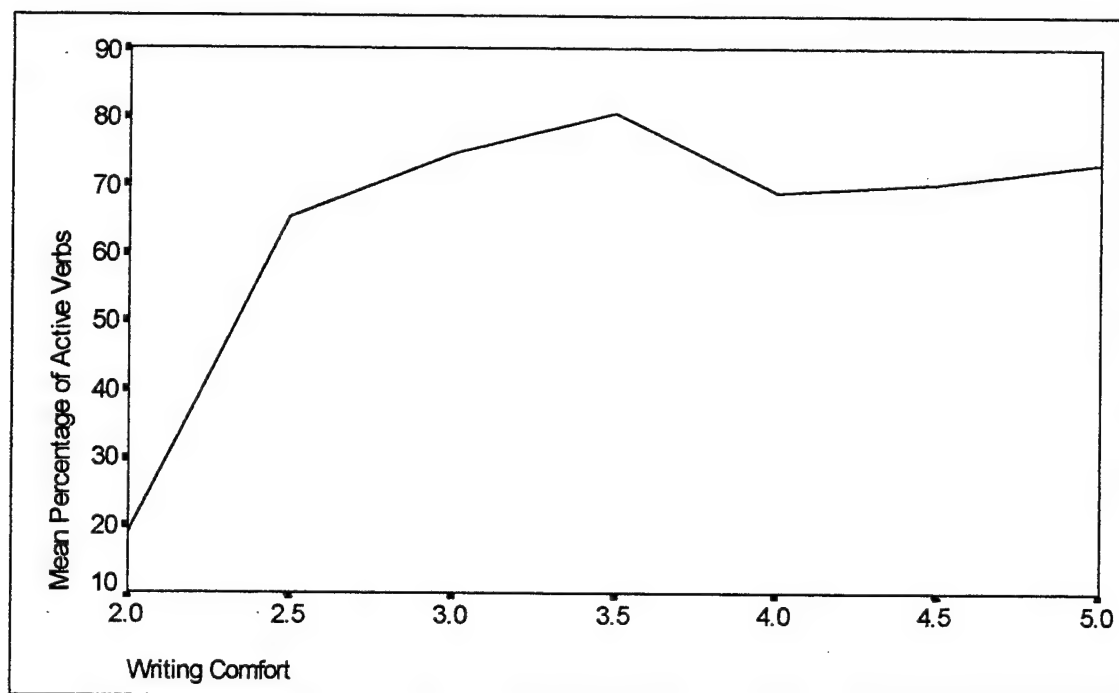
**Figure 9. Graph of Active Verb Frequency and Writing Comfort**

was no meaningful pattern. For example, the scientist who rated his writing comfort a 2 used no nominals, while writers who gave a 4½ rating used nominals in 14% of their clauses. Apparently, feeling comfortable about one's writing ability does not mean the same thing as writing in an active verbal style.

## Objective 2. Comparison of Writers' Stated Preferences Concerning the Writing Guidelines with Their Actual Writing Practices

The purpose of this objective was to determine if there were differences between what writers said they did and what they actually did. I wondered if writers thought they used topic sentences or active voice but in practice did not do so. If there was a discrepancy between what they said and did, it might be because they did not really understand what a topic sentence was, or they might not have consciously thought about avoiding passive verbs.

### Topic Sentences

On the survey I asked participants to rate what they thought about topic sentences: whether they

tried to use them and whether they thought paragraphs should begin with them. I calculated a mean for the variable topic sentence use using questions 22 through 24. There were no significant differences between groups categorized according to topic sentence use on their frequency of topic sentences (Kruskal-Wallis chi-square = 13.135, D.F. 8, p = 0.1073). Furthermore, there was no clear, linear pattern between topic sentence use rating and actual topic sentence frequency. That is, people who said they tried to use topic sentences did not use them any more or less than those who said they did not try to use them. Perhaps it was difficult for people to estimate how much they used topic sentences, or maybe there was no correspondence between thinking about using topic sentences and actually using them.

Another indication of the importance people assigned to topic sentences was the frequency with which they mentioned them when I asked them what were the most important qualities of good writing. Topic sentences were specifically mentioned in only two cases, or 1.8% of all responses. Participants did not mention them at all as features their supervisors expected. As far as writing problems that bothered participants the most, four types of responses constituting 12.0% of the responses could be related to topic sentences: lack of organization, pointlessness, lack of clarity of purpose, and more than one idea per paragraph (see Tables 47 through 49). Apparently, using topic sentences was not seen as important unless the failure to do so resulted in communication problems.

**Verbal Style**

I also asked participants if they tried to use active verbs and avoid passive and smothered verbs. I calculated scores for active-passive using the responses to items 26 through 28 and item 30 on the survey. I used the rating participants gave on item 29 as a measure of the extent to which they tried to avoid smothered verbs. Table 24 contains the results of the Kruskal-Wallis ANOVA of verb types by the rating for use of active and passive verbs. There were no significant differences among ratings of active verb use and the actual frequency of active verbs. Perhaps the survey items did not measure very well how much people thought they used active verbs, or maybe people really did not know how much they used them. During the interviews, some people confused active and passive voice with present and past tense, so it might be that some people did not understand what active and passive voice were.

**Table 24. Kruskal-Wallis One-Way ANOVA of Verb Types**

**by Rating for Use of Active and Passive Verbs**

| Independent Variable | Kruskal-Wallis | | |
| --- | --- | --- | --- |
| | Chi-Square | D.F. | p |
| Active | 13.317 | 8 | 0.1014 |
| Agentless Passive | 11.628 | 8 | 0.1686 |
| Agentful Passive | 10.922 | 8 | 0.2061 |

There were significant differences among groups categorized according to the extent they tried to avoid smothered verbs. The Kruskal-Wallis chi square was 7.524 with 2 degrees of freedom (p = 0.0232). The ANOVA table is Table 86. Although the $F$-ratio of 3.5491 was significant (p = 0.0308), no two groups were significantly different on the Bonferroni test. This was probably because 68% of the cases fell into the "undecided" category. Although this group had the highest frequency of nominals at 8% of clauses, the group with the lowest frequency, those who said they did not try to avoid smothered verbs, consisted of only 5% of the cases. Thus, even though they used nominals in only 2% of the clauses, there were not enough cases to make enough of a difference. Clearly, not many people even knew what a smothered verb was, since so many people said they were undecided about the item, and those who said they did not try to avoid smothered verbs used them less than those who said they did try to avoid them, with the latter group using them in 5% of their clauses. Obviously, if they did not know what a smothered verb was, they could not consciously avoid them.

As might be expected, neither smothered verbs nor nominalizations were mentioned as writing problems on the survey. However, wordiness, big words, and governmentese were all mentioned as problems, the number of response together making up 24.0% of the total. Certainly nominals might fit in any of these categories. In addition, one response, or 1.0% of the total, referred to the passive voice as a problem. Although passive voice could also fit in the wordiness or governmentese categories, apparently not many people viewed its use as a problem. On the other side of the coin, only one response (0.9%) referred to the active voice as a desirable quality. No participants listed it as a quality their supervisors

expected. Evidently, use of the active voice *per se* was not viewed as important, although qualities often associated with it were, such as conciseness, clarity, and simplicity (see Tables 47 through 49),

## Objective 3. Writers' Reasons for Complying or Not Complying with the

## Air Force's Guidelines

### Topic Sentences

During the interviews, I asked the participants if they thought each of the paragraphs in one of their writing samples contained a topic sentence. If they thought there was a topic sentence in a paragraph, I asked why they included it; if they thought there was not, I asked why they did not include one. Before I discuss these reasons, it is interesting to examine the agreement between the participants and myself about whether paragraphs contained topic sentences because it reveals whether we had the same concept of topic sentence. I only looked at whether we agreed on there being a topic sentence or not because 17 out of the 28 participants (60.7%) identified more than one T-unit, only a word or a phrase, a heading, or a 1-T-unit paragraph as a topic sentence, whereas I did not. I can understand how they might have identified more than one T-unit, since a sentence might contain more than one T-unit, and I had asked them to identify the topic sentence, not T-unit. I can also understand why they thought a 1-T-unit paragraph was its own topic sentence; since, as many of them pointed out, it was the only sentence in the paragraph, it had to be the topic sentence. Finally, in some cases they thought there was not a topic sentence when I did.

Table 25 is a crosstabulation showing the agreement between the participants and myself concerning topic sentences. The agreement was 64.2%. Cohen's kappa, which is a measure of agreement that takes chance into consideration, was 0.2372, where the ideal is 1.0 ($p \cong 0.01241$). This was a rather low level of agreement—little better than would have been achieved by chance. Thus, my idea of a topic sentence might not have matched the participants' ideas, even though I defined it as "the sentence stating the main idea of the paragraph." Or it might be that the identification of topic sentences was too subjective a task to ask of the participants. Even after training a research assistant, the average interrater agreement we were able to achieve was 80%. Clearly, the validity of this task was questionable, and the results, even the statistically significant ones, must be used cautiously.

**Table 25.  Crosstabulation of Agreement Between Participants and**

**Researcher on Topic Sentences**

| Count | | | |
|---|---|---|---|
| *Total Pct.* | *Participants* | | |
| *Researcher* | *No Topic Sentence* | *Topic Sentence* | *Row Total* |
| No Topic Sentence | 21 | 23 | 44 |
| | 19.3% | 21.1% | 40.4% |
| Topic Sentence | 16 | 49 | 65 |
| | 14.7% | 45.0% | 59.6% |
| Column Total | 37 | 72 | 109 |
| | 33.9% | 66.1% | 100.0% |

The low level of agreement between the participants and myself concerning topic sentences raises another important issue besides the validity of the task.  If there are so many ideas about what constitutes a topic sentence, can the PME schools reasonably expect to teach what a topic sentence is in the short amount of time allotted for writing instruction?  To some participants, a topic sentence stated exactly what its name suggests:  a main topic.  To others, it summarized a paragraph, while to still others, it expressed a conclusion of the most important point, as opposed to the main point.  With so many different concepts of topic sentence, is it useful to try to teach the concept?  I believe it is useful.  As Winsor explains, explicitly teaching concepts such as topic sentence helps people to hang a label on the tacit knowledge that they later develop.  Most of the participants I interviewed did have some idea of what a topic sentence was, so having been taught about topic sentences somewhere along the way gave them a general concept.  A general concept of topic sentence serves as an advanced organizer for writers for the development of a schema of topic sentence as they write on the job.  It also helps them to explicate their tacit knowledge, not only when talking to writing researchers, but when explaining how to write something to a colleague.  I think it is important, however, to teach a flexible concept of topic sentence that suggests their many uses, not a rigid one with only one use.

Bearing the validity problems in mind, Table 26 is a crosstabulation of reasons by whether there was a topic sentence or not. For ease of reference, the codes for the reasons are given in the table; a legend for the codes follows the table.

A chi-square test would normally be used to determine the significance between two categorical variables such as reasons and topic sentence, but it was not useable in this case because 19 out of the 34 cells contain expected counts of less than 5. However, measures of association are useful in this instance, and Goodman and Kruskal's lambda with reasons as the dependent variable was 0.3333, where the ideal is 1.0 ($p \cong 0.00797$). This means that, knowing the reason, there would be a 33% PRE in guessing whether there was a topic sentence or not. However, with both variables symmetric, Goodman and Kruskal's lambda was 0.16518 ($p \cong 0.00341$). Although lambda was smaller with both variables symmetric—that is, neither dependent on the other—it was more significant, suggesting that each variable had strong main effects. Whether writers included a topic sentence should have been dependent on their reasoning at the time they wrote a document, and this might have happened in some cases. As I will discuss, however, I do not believe this was the case the majority of the time. Instead, the reasons they gave me seemed to depend on whether they included a topic sentence or not.

Just by looking at the rows in Table 26, it would appear that participants seemed most likely to use a topic sentence for reasons 1d, 1e, 2b, 5a, 5b, 5c, 5d, 5f, and 5g. Simply examining the row percentages does not indicate which reasons were the most significant, however. For example, although reason 1b was used 100% of the time to justify not including a topic sentence, it accounts for only 0.5% of all reasons given. One method for determining the association between two or more categorical variables is to use loglinear analysis, which converts the cell counts to natural logs. Then a lambda parameter is calculated for the main effect of each variable; the lambda parameter indicates how much the mean for each category of a variable is greater or lesser than the grand mean. A lambda parameter is also calculated for the interactions between each variable; it indicates how much the observed frequency of a pair of categories of a variable is greater or lesser than the expected frequency. For example, is the observed frequency of efficiency as a reason for including a topic sentence greater or lesser than the expected frequency? The lambda parameters for both main and interaction effects can be converted into standard (z) scores to determine statistical

**Table 26. Crosstabulation of Reasons by Inclusion of Topic Sentence**

| Reason | Topic Sentence | | | | | |
|---|---|---|---|---|---|---|
| | No | | Yes | | Row Total | |
| | Count | Pct. | Count | Pct. | Count | Pct. |
| 1a | 2 | 40.0% | 3 | 60.0% | 5 | 2.7% |
| 1b | 1 | 100.0% | 0 | 0.0% | 1 | 0.5% |
| 1c | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| 1d | 3 | 12.5% | 21 | 87.5% | 24 | 12.8% |
| 1e | 0 | 0.0% | 4 | 100.0% | 4 | 2.1% |
| 1f | 1 | 100.0% | 0 | 0.0% | 1 | 0.5% |
| 1g | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| 2a | 5 | 55.6% | 4 | 44.4% | 9 | 4.8% |
| 2b | 3 | 37.5% | 5 | 62.5% | 8 | 4.3% |
| 3a | 8 | 50.0% | 8 | 50.0% | 16 | 8.6% |
| 3b | 8 | 72.7% | 3 | 27.3% | 11 | 5.9% |
| 5a | 0 | 0.0% | 3 | 100.0% | 3 | 1.6% |
| 5b | 0 | 0.0% | 5 | 100.0% | 5 | 2.7% |
| 5c | 9 | 34.6% | 17 | 65.4% | 26 | 13.9% |
| 5d | 1 | 12.5% | 7 | 87.5% | 8 | 4.3% |
| 5e | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| 5f | 2 | 14.3% | 12 | 85.7% | 14 | 7.5% |
| 5g | 0 | 0.0% | 25 | 100.0% | 25 | 13.4% |
| 5h | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| 6 | 17 | 73.9% | 6 | 26.1% | 23 | 12.3% |
| 7 | 3 | 75.0% | 1 | 25.0% | 4 | 2.1% |
| Total | 63 | 33.7% | 124 | 66.3% | 187 | 100.0% |

**Table 26.  continued**

Legend for Reason Codes

1a  =  Efficiency

1b  =  Redundancy

1c  =  Verb Voice

1d  =  Topic sentence definition

1e  =  Cultural expectation or prohibition

1f  =  Training

1g  =  Consistency

2a  =  Organizational expectation

2b  =  Standard statement in most documents

3a  =  Standard part of a certain type of document

3b  =  Heading

5a  =  Agency

5b  =  Emphasis

5c  =  Audience awareness

5d  =  Comprehensibility, simplicity, or clarity

5e  =  Level of formality

5f  =  Author's purpose

5g  =  Topic

5h  =  Tact

6  =  No consideration given

7  =  No reason

significance.  A z-score with an absolute value of 1.96 is significant at the 0.05 level.

Examples of reasons 1d, 1e, 2b, 5a, 5b, 5c, 5d, 5f, and 5g, which seemed to be significant, follow, with discussion.  The participants who gave each response are identified by code (e.g., C1) rather than by name.

I also indicate which reasons proved to be statistically significant according to the loglinear analysis. The actual results of the loglinear analysis are provided in Table 87 in Appendix D.

*Reasons for Including Topic Sentences*

*Reason 1d: Topic sentence definition.* This reason refers to widely accepted definitions of *topic sentence*.

C1: This one here, I felt that pretty well summed up the whole thing in just one sentence as to what we wanted to say in the rest of the paragraph.

C3: Well, to start with, when I've got an inquiry from a country, I've got to definitely state the question that I've received from them so that, in case there's some translation problems, they understand what I was answering. It may not be the question—sometimes you find out that wasn't the real question, so you need to put the question up front there to start with.

M2: Basically because this paragraph's talking about how we're going to do flight testing . . . and then I just follow on with the aircraft we're going to use, etc., etc., to accomplish what's stated in the first sentence. So I assume that's a topic sentence.

M3: I started this paragraph with more background information and put the bottom line at the bottom of the paragraph.

Each of these examples addresses one or more aspects of the cultural—that is, textbook— definition of a topic sentence. Writers included topic sentences to summarize, usually at the beginning of a paragraph, the main point of the paragraph. They did so because the culture at large expects them to, which becomes more apparent from reason 1e. This reason was one of only three that were significant on the loglinear analysis.

Note that with the exception of C3, these answers seemed to be justifications for why the participants identified the sentence they did as a topic sentence, not why they included a topic sentence. This is especially clear from M2's final statement, "So I assume that's a topic sentence." She was explaining why she picked that sentence as the topic sentence, not why she included a topic sentence in the paragraph. I believe this was the case for most of the participants. C3's response seems to indicate some forethought while composing about stating a main idea at the beginning of the paragraph. Since his audiences consisted mostly of foreigners whose first language was not English, it was crucial for him to state at the beginning of a paragraph or a memo what question he was responding to, since it might not have been the question the audience was really interested in. While he might not have thought in terms of

topic sentences, he clearly thought in terms of the question he was answering. M3's response is interesting because it shows an awareness of the bottom line, but she put the bottom line last in the paragraph, not first as is usually recommended. But again, I think she merely explained what she did, not her thought process as she wrote the document. I do not believe she consciously thought about a topic sentence or the position of her bottom line. Her response to item 22 on the survey supports this, since she strongly disagreed that she consciously tried to use topic sentences. The mean response for this item was 3, or "undecided," while the mode was 2, or "disagree."

As I discussed under Objective 2, there were no significant differences in topic sentence frequency among groups classified according to the extent they thought they used topic sentences. Either the survey items were not worded in such a way as to reliably get at this information, or people could not judge whether they thought about using topic sentences. I am inclined to believe the latter. I believe the people who said they did not think about using topic sentences or had no reason for including the sentences they identified as topic sentences were being the most honest. Most of the rest of the people either did not understand the intent of my question or did not understand what a topic sentence was. As I pointed out above, when I asked participants why they included or did not include a topic sentence, I believe most people interpreted that to mean why they chose the sentence they did as a topic sentence. In many cases, they simply restated the sentence, as will be shown under reason 5g. When they did not identify a topic sentence, instead of explaining why they did not include one when they wrote the document, they often apologized for not including one, stating that they should have written it differently. As I pointed out before, some people might have felt that I was criticizing their writing, even though I explained I just wanted to find out what people did and why they did it. For the remainder of this discussion, I will treat the reasons writers gave as justifications after the fact, not as reasons considered before or while composing, unless writers explicitly stated they thought of the reasons when they wrote a document.

*Reason 1e: Cultural expectation or prohibition.* This reason refers to textbook *do*'s and *do not*'s concerning writing. Here is a typical response:

M7: Because you're supposed to?

This comment indicates that people sometimes justified including topic sentences because they were expected to by the culture at large. According to the textbook definition of good writing, a paragraph must begin with a topic sentence, and some of the reasons given to explain the inclusion of topic sentences reflected this definition. However, this reason was not significant according to the loglinear analysis.

*Reason 2b: Standard statement in most documents.* Institutional requirements were sometimes given as justifications for including topic sentences. One type of institutional requirement is to include a standard statement in most documents. Examples of comments that reflect this requirement follow.

> C4: That's just kind of standard, I think, almost anytime when we correspond with almost anybody. We'd always—that's just kind of a standard format. . . . The last statement is either, "This is the POC [point of contact]," or, "I'm it; call me." But always something; "Call me; if you have questions, I'm the one to discuss it with." So I would leave it, yeah, mainly because it kind of has to be.

> C13: In case there are any questions about the procedure, data, or anything. . . . It's kind of been laboratory policy to have a statement of that kind at the end of the report.

These examples show that, in some cases, writers justified topic sentences because of institutional requirements, usually to name a point of contact for a document. Most of these topic sentences were the only sentence in the paragraph, and I did not consider them topic sentences. In addition, some participants used the requirement to name a point of contact as their reason for *not* including a topic sentence. Nonetheless, institutional requirements could be reasons for including or excluding a topic sentence, although this reason was not significant on the loglinear analysis.

*Reason 5b: Emphasis.* The majority of the justifications for using topic sentences fell into the situational category. These justifications referred to either the authors' subjects, purposes, or audiences. Examples include the following:

> M11: I included that because—that was to emphasize to the retirees—sometimes people retire and just want to get out, so we are just reemphasizing that the SBP [Survivor Benefit Plan] elections are completed, and we told them the days because we've run into a couple of problems where people didn't know that time period, and then, when they went to get paid—so just as a quick reminder, just to make it quick and remind them, "Sixty days, go to SBP." That's it.

> C7: It explains the purpose for why the deer on base are a hazard, why they're important, and it leads to—if you don't say "BASH" [Bird-Aircraft Strike Hazard], you don't get the commander's attention, since they had an incident in Alaska where an AWACS airplane was taking off and ingested some Canadian geese and all souls on board were killed, plus loss of aircraft, and their vice commander lost his job because he was in charge of BASH. So it's one of the few things we do on the base that impacts [sic] the mission.

Although emphasis was used infrequently as a justification (it was not significant according to the loglinear analysis), in 100% of the cases it was used to justify the inclusion of a topic sentence. The writers who used it viewed a topic sentence as an attention-getter and saw it as emphasizing the main point of the paragraph. To them, the topic sentence did not merely *state* the main point; it *emphasized* it. This emphasis was usually accomplished by making the topic sentence the first sentence of the paragraph.

*Reason 5c: Audience awareness.* Examples of writers justifying topic sentences based on audience needs include:

> C3: The Israelis typically—they always—again, this is an unasked question, but you'll always get hit with, "What did the fatigue tests show?" So I answered it to let them know, plus the fact that what the fatigue tests showed is what had driven McDonnell Douglas to beef up the airplane, and they needed to know that.

> C4: I'd feel I'd have to let him know that, to alert him I made some changes and go ahead and explain these other changes I've made and what they are. Right off the bat I want him to know I made some changes.

> M3: The information after it sort of is summarized by—I was trying to put it in perspective for the guys who are reading it and really don't know a whole lot about copiers . . . This is sort of like the summary sentence starting the paragraph.

> M5: This discussion was—the way that they had worded it in their letter wasn't completely the full extent, so I wanted to just clarify they knew exactly where we were coming from for this recommendation. The first one [recommendation] which had been just a sub-bullet, "lowering the guaranteed minimum," was fairly explanatory both in their letter, and I felt they understood what we were talking about, whereas with recommendation number two, I felt, "Well, maybe they didn't quite understand our intent," and it needed a topic sentence to explain—to clarify, I guess, is basically [sic].

> M7: Well, this is an answer to a question that the LG [logistics group] asked me about ACC [Air Combat Command] and MICAPs [mission capabilities]: were they being express shipped? . . . I started out with the answer to the question. To me, this is the topic sentence, in most cases, and then I expounded upon it based on that. She's gonna ask me all these questions if I don't.

> M9: So that way the reader knows what's going on. A lot of times the readers, the people that we give this back to, are on a different technical level. They don't look at it from a metallurgy point of view; they look at it from a we-have-to-replace-this-part point of view.

> M9: We assume that the person reading this is—that's where they are going to look to straight. They gave us this, and they want to know why, and that's their answer.

In all of these examples, writers justified including a topic sentence either as anticipating what their readers needed to know or as answering a question their readers had asked. They included topic sentences to answer anticipated or previously asked questions. These writers showed a good awareness of the needs

of their audiences. Even though they might not have consciously considered these needs when they wrote the documents, they certainly understood their readers' needs tacitly and accommodated them accordingly. In at least one case, it appears a writer did think about what her readers understood as she wrote. M5 said she included a topic sentence in one paragraph but not another because she thought that "maybe they didn't quite understand our intent." Apparently when she wrote the document, she considered whether her readers' understanding matched her intent.

Another writer also used audience awareness as a reason for *not* including a topic sentence. Unlike some writers who used a topic sentence to answer their readers' questions, she felt she did not need to include a topic sentence because the reader obviously knew what the question was: "Actually, these were more of responses to particular questions, and I didn't—I felt they already had the background, I guess" (M4). Although in the majority of cases audience awareness was used to justify a topic sentence, clearly writers considered what their readers already knew and what they needed to know in justifying the inclusion or omission of a topic sentence. Whether they did this consciously while composing cannot be determined, but it is possible that they tacitly considered their audiences. This reason was not statistically significant, however.

*Reason 5d: Comprehensibility, simplicity, or clarity.* Writers were much more likely to justify including than omitting a topic sentence based on it making a paragraph easier to comprehend. Following are some typical comments:

C2: Because if I were to delete it, it wouldn't make sense; the paragraph wouldn't make sense.

C4: Here I was just trying to clarify, "Try and tell me what you really want to do with the person so that you don't do one thing and then find out later, well, we fouled up the movement of people."

M9: So it's clear to the reader, which should be the person who submitted to this lab, of what we—what they gave us.

M10: I guess just to make clear exactly what the purpose of this letter is.

Like audience awareness, comprehensibility refers to the reader, but while the former refers to what the reader knows or needs to know, the latter refers to aspects of the text that make it easier for the reader to comprehend, including simplicity and clarity. In the above examples, writers justified including

topic sentences because they made the paragraphs they summarized clearer or easier for the reader to understand. These examples again show that writers did consider their audiences while composing, whether consciously or unconsciously, and how to make their documents more comprehensible. This reason was not significant statistically.

*Reason 5f: Author's purpose.* Some of the examples I gave above referred to the author's purpose for writing, such as M5's statement under audience awareness that "I wanted to just clarify they knew exactly where we were coming from for this recommendation." Additional examples include:

> C3: They had asked if there were any reports of countries, and I had had one from one country, and I just wanted to tell them.

> C4: This was in discussion with him and trying to clarify that they already had a person covering what were the basic responsibilities of this position, and what I wanted to be sure was, is he wanting to do that?

> M3: Because it's the whole meaning of the entire paper.

> M5: So that we know the intent of the letter.

In these examples, the writers overtly referred to their purposes for writing as justifications for including topic sentences. Usually these topic sentences stated the intent of not just the paragraph but the entire document. This reason was not significant.

*Reason 5g: Topic.* Finally, as I mentioned earlier, in a large number of cases, writers simply referred to the topic of the paragraph or restated the main idea of the topic sentence to explain why they included it in the paragraph. This type of reason was given more frequently than any other for using a topic sentence and was never used to justify not including a topic sentence. In fact, this was the second reason that was significant on the loglinear analysis. I conclude that many participants did not really understand what I meant when I asked why they included a topic sentence based on the large number of responses in this category. Examples of such responses follow:

> C5: I think the main topic is talking about that Pratt & Whitney engine.

> C6: It seems like it introduces the topic of the command metrics.

> C9: That is the topic of it; in other words, we're talking about the SBC5 processor board, and this whole thing talks about the SBC5 processor board.

> M2: That's the entire topic of that paragraph, so I figured it's pretty much the topic sentence, just

restating the recommendation to fly the aircraft.

M8: I think in this section here, this sentence pretty much summarizes and tells you what the topic is of this section and what the main points are.

All the respondents were doing in these examples was restating the topic of the paragraph. Perhaps in some cases people included a topic sentence to express the main topic of the paragraph, but I think in most cases, people were simply explaining why they identified the paragraph they did as a topic sentence. One participant even asked me, "Why did I choose that sentence as the topic sentence, is that what you want to know?" Other participants asked me similar questions, and those participants who did not request clarification might have been unsure of what I wanted to find out. Perhaps phrasing my question as, "When you wrote the paragraph, do you recall why you did or did not include a topic sentence?" would have elicited the types of responses I was interested in.

*Reasons for Not Including Topic Sentences*

In contrast to reasons used to justify the inclusion of topic sentences, only three types of reasons were strongly associated with the omission of topic sentences: 3b, 6, and 7.

*Reason 3b: Heading.* Examples of this type of reason follow:

C16: This could almost come under the heading of "General Information," or something. It seemed to me to be a bunch of loosely connected things that someone told them to put in. . . . Now, the topic requirements doesn't [sic] really fit the information that follows.

M5: Again, a quick blurb. "Evaluation criteria" was the heading, but it's not a sentence, and both parties understood that area.

In these examples, the writers felt that headings took the place of topic sentences. In the first example, the writer felt a topic sentence was not possible, since the paragraph included several loosely connected ideas; a heading was the only option. In the second example, a topic sentence was not necessary since both the writer and the reader understood the area, so a heading sufficed. I should add that in a few cases, writers considered headings to be topic sentences, although I did not, and used them as justification for including the topic sentences. I included headings under generic conventions because only certain types of documents included them, such as acquisition documents and instructions. One writer pointed out, "We

typically, when we write a C5 or a B5 [type of instructions], normally we put a paragraph of verbiage in it; we typically label the paragraph with a header. . . . Now, for most things I write, I don't do it that way; I don't number the paragraphs and put headers" (C10). I was surprised that more writers who used headings in their documents did not refer to the headings as replacements for topic sentences. Perhaps they did not since the Air Force does not emphasize this function of headings. Maybe they viewed the headings only as a required part of the format of their documents. This reason was the third and final reason that was significant on the loglinear analysis.

*Reason 7: No reason.* Some writers admitted they did not have a reason for including or not including topic sentences, although in three out of four cases, it was used to explain the omission of a topic sentence. Examples of comments follow:

> C1: Well, I'm not sure. It's a while ago that I wrote it. . . . I don't know the reason that I wouldn't have [included a topic sentence].

> M4: I didn't—I just went through the scenario instead of summing it up at the beginning. No reason.

The first example illustrates another weakness of asking writers why they did not include a topic sentence after the fact. There might have been such a long time lag from the time they wrote the documents that they simply cannot remember the reason. It would probably be better to query writers immediately after they wrote a document. Then the possibility of obtaining more reliable information would be greater, such as whether writers consciously thought about topic sentences. If they did, why did they include or omit them? If they did not, why did they not think about them? The second example is probably closer to "I did not think about it," but since the participant said, "No reason," I included it in this category.

*Reason 6: No consideration given.* Examples of category 6, which was the largest category used for explaining the absence of a topic sentence, follow:

> C6: I don't consciously think about it. I guess if I do [include a topic sentence], it's because I try to write that way, but I can't say that I consciously say, "Now, do I have a topic sentence?" I really don't do it that way. . . . I guess what I meant to say was I don't, I probably don't think about those particular structures every time I write a sentence. Probably the topic, what I'm referring to—I guess I just don't think about it in each thing I say. I just do it. If it sounds O.K., and I'll think, "Oh, I'll put this here and that there," that's basically how I do it. It's more of a judgment call I guess; it's not a real structured thought pattern.

> C7: Because I don't remember the format that I was writing; I just go—when I write, I don't

consciously think about the rules, other than I try to talk grammatically, I guess. I try to go for conciseness and introduce the problem, make sure in the beginning I lead into what comes on later, especially acronyms, so that if there's a conclusion at the bottom of a letter, I've introduced enough facts ahead of time to justify my position. So as far as organizing paragraphs, it hasn't occurred to me that there's a reason for paragraphs at all. If you nail me down to what the proper English rules are, I've forgotten what they are.

C12: I didn't write anything with a view to, "This is the way to write things." It was more of a, "How can I explain it to these trainees, to get it across to them?" And it's probably not very well written, but I think it gets the idea of what I'm try to convey to them.

C13: I don't know. I guess it hasn't been part of my training, something I haven't considered much about.

C14: I simply don't think about that. I don't write that way—sorry.

M2: I don't know. Usually on the memorandums that we write, don't really sit down and think about topic sentences, because they number them by paragraph, so it's kind of an idea per paragraph, so it doesn't necessarily fall out that there's a topic sentence in all of them.

M4: I guess I didn't really think, "God, I need to come up with a topic sentence." . . . Sometimes when you're writing, unless it's for like back in English class or so forth, then you just don't sit there and actually think, "I need a topic sentence." Unless you think about it, then you're really not going to end up with one. But they're important because I know, that's what I've learned and so forth, but I just don't practice what I've
learned. . . . I don't get letters back from colonels going, "Where is your topic sentence, Lieutenant?"

M7: I wasn't thinking so much in sentence structure as far as just putting down information.

In all of the above examples, the writers admitted that they did not consciously consider using topic sentences when they wrote their documents. They simply attempted to either get their point across to their readers or to get their information down on paper. One participant explained that he had not been trained to write topic sentences; another assumed that since paragraphs in Air Force memos were numbered, there should have been only one idea per paragraph and that the reader would be able to determine what it was. Most participants said it just was not their mode of operation to write topic sentences.

Even when they included topic sentences, some writers pointed out that they did not consciously think about using them when they wrote the documents:

C13: Well, if it got included . . . it wasn't because I was consciously trying to tie everything together.

C14: I didn't consciously think about it, actually. It's just the way I write. It seems to have fallen that way, but I didn't consciously think, "This is the topic sentence and I'll stick it first."

M8: Well, at the time of doing these during the staff meeting minutes, I wasn't thinking in terms of topic sentences or not, but mainly in each section in making a statement of what was the main point of getting that particular section of information across. That's more or less how if it had a topic sentence or not for each section or division of the staff meeting minutes. It's not necessarily putting a topic sentence in there or not, but I think, if it has one in there, it's because it's a sentence that got the main point across.

The common theme of these writers was that, if topic sentences ended up being in their paragraphs, it was an accident, because they did not consciously think about putting them there. I can believe these writers because I myself do not consciously write topic sentences. I think what these writers were saying they did was start out with a general statement of their topic and then expand upon it and develop it. If the general statement turned out to fit the traditional definition of a topic sentence, then it was a coincidence, because they did not start out trying to write a topic sentence.

Topic sentences, when they occurred, might have been more of a reflection of tacit knowledge than an overt attempt to use them. Through formal training and long experience with writing, writers learned to express a main point somewhere in a paragraph. While they might have been forced to write explicit topic sentences in school, they were rarely required to do so on the job. Thus, they could write statements that fit the textbook definition of topic sentence without even consciously thinking about it, although they might have done so with varying degrees of success.

When topic sentences did not occur, there might have been good reasons. As M5 pointed out:

In some cases, you could put a topic sentence there, but it may be extra verbiage that's not required, and depending on the party, who's doing the writing and the recipient, if the thought is already there, they already understand, it may not be necessary. And in some cases the flow—you can still get the gist of what's trying to be conveyed, I think, without having to introduce a topic sentence just because you need a topic sentence.

In this study, I identified at least one significant reason for not using topic sentences, which was to use headings in their place. Although only a few writers expressed this reason, the research on readability suggests effective headings can improve the comprehensibility and accessibility of information. With greater emphasis by the Air Force, more writers might use headings in the place of topic sentences to signpost their main ideas.

**Verbal Style**

To determine why writers chose the passive voice over active voice and nominalizations over un-nominalized verbs, I gave them an instrument based on one of their writing samples, as described in Chapter 3. A crosstabulation comparing writers original verbs with their choices on the instrument is provided in Table 27. Then I asked the writers to explain the reasons for each of their choices.

The agreement between writers' original verbs and the verbs they chose on the instrument was 61.3%. Correcting for chance, the agreement according to Cohen's kappa was 46.0% ($p < 0.00001$).

**Table 27. Crosstabulation of Original Verb by Chosen Verb**

| Count Row Pct. Total Pct. | | Chosen Verb | | | |
|---|---|---|---|---|---|
| Original Verb | Active | Agentless Passive | Agentful Passive | Nominal | Row Total |
| Active | 41 | 7 | 9 | 1 | 58 |
| | 70.7% | 12.1% | 15.5% | 1.7% | 34.5% |
| | 24.4% | 4.2% | 5.4% | 0.6% | |
| Agentless Passive | 18 | 23 | 4 | 0 | 45 |
| | 40.0% | 51.1% | 8.9% | 0% | 26.8% |
| | 10.7% | 13.7% | 2.4% | 0% | |
| Agentful Passive | 8 | 3 | 9 | 0 | 20 |
| | 40.0% | 15.0% | 45.0% | 0% | 11.9% |
| | | 1.8% | 5.4% | 0% | |
| Nominal | 10 | 5 | 0 | 30 | 45 |
| | 22.2% | 11.1% | 0% | 66.7% | 26.8% |
| | 6.0% | 3.0% | 0% | 17.9% | |
| Column Total | 77 | 38 | 22 | 31 | 168 |
| | 45.8% | 22.6% | 13.1% | 18.5% | 100.0% |

Thus, the agreement was better than would have been achieved if the participants had guessed or marked their responses randomly, since there was about a 25% chance on each item. Furthermore, the differences between participants' original verbs and their chosen verbs were significant, as indicated by a chi-square of 135.715 with 9 degrees of freedom (p < 0.00001).

In the majority of cases, participants did remain with their original verb, although the extent they did this varied by verb type. The greatest area of agreement was with active verbs, where participants chose an active verb 70.7% of the time when the original verb was active. One question to be asked, however, is why they chose passive or nominalized verbs the other 29.3% of the time. As will be discussed below, participants had many reasons for doing so, including efficiency, the way a construction sounded or flowed, agency, emphasis, comprehensibility, level of formality, accord with the author's purpose, and topic-comment flow. In addition, some writers admitted they simply did not consciously think about their choices.

The next greatest area of agreement was with nominals, where a nominal was chosen 66.7% of the time when the original was a nominal. In the remaining cases, either an active or an agentless passive verb was chosen. Interestingly, an active or passive verb was changed to a nominal in only one case. So although other types of verbs were not nominalized, why did writers keep the nominals they had so often, even though they were usually more wordy than their verbalized counterparts? The reasons writers gave were very similar to those they gave for choosing other types of verbs. Except for the reasons of voice, organizational expectations, and topic-comment flow, no other reasons were strongly associated with particular verb choices. As I will discuss, writers seemed to choose the verb that was the most appropriate to their situation or that best met their criteria.

The third greatest area of agreement was with agentless passive verbs, where writers remained with their original verb about half of the time. In 40.0% of the cases, they changed the verb to an active verb. Overall, the choice of the active was a significant main effect according to a loglinear analysis (see Table 88). Writers also changed 40.0% of their agentful passive verbs to active, agentful passives being the area of lowest agreement. Once again, similar reasons were given for changing passive verbs to active as

were given for changing active verbs to passive. The choice of verb seemed to depend on the situation and the rhetorical effect writers wanted to achieve. That so many writers switched to the active is good news for the Air Force, but unless writers could be taught to be more critical of their own writing or supervisors encouraged writers to use the active more, these results do not have much practical significance. As I previously pointed out, the validity of this procedure was probably low. Most writers do not write active, passive, and nominalized versions of every sentence and then pick the best one. What I think these results do show is that most writers have fairly sophisticated reasons for writing things the way they do, much more sophisticated than the advice to always use the active unless the agent is unknown, unimportant, obvious, or better left unnamed. I was able to classify 22 other reasons besides agency for selecting a verb (not including no reason or did not think about it). Many of these reasons have become conventionalized— to the extent that hearing people in organizations far removed from each other give the same reason in almost the exact same words was uncanny. I believe that many of these conventionalized reasons were part of the tacit knowledge of the participants. In most cases, they did not consciously write in the active or passive after carefully considering the options and the rationales for each one. I believe that participants' tacit knowledge of the writing conventions in their discourse community was brought to the surface by asking them to explicate their reasons for choosing one type of verb over another on the writing instrument. I will discuss these issues further as I examine writers' reasons for choosing the types of verbs that they did. A crosstabulation of writers' reasons by their verb choices is presented in Table 28.

As with the crosstabulation of reasons by topic sentences, the chi-square statistic was not useable with the crosstabulation of reason by verb choice. The measure of association between reason and verb choice was small and nonsignificant as indicated by Goodman and Kruskal's lambda of 0.04639 ($p \cong$ 0.05936). Since there was such a large number of cells in the table (96), I performed a loglinear analysis to pinpoint which reasons were most significant for which verb choices (the results are in Table 88). Only three reasons had significant interactions with verb choice: reasons 1c and 2a interacted significantly with active verb choice, and reason 5g interacted significantly with agentful passive verb choice. Comments from the interviews for each of these interactions follow.

**Table 28. Crosstabulation of Reason by Verb Choice**

| Reason | Active Count | Active Pct. | Agentless Passive Count | Agentless Passive Pct. | Agentful Passive Count | Agentful Passive Pct. | Nominal Count | Nominal Pct. | Row Total Count | Row Total Pct. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1a | 21 | 51.2% | 12 | 29.3% | 3 | 7.3% | 5 | 12.2% | 41 | 10.9% |
| 1b | 0 | 0.0% | 1 | 50.0% | 1 | 50.0% | 0 | 0.0% | 2 | 0.5% |
| 1c | 20 | 83.3% | 2 | 8.3% | 0 | 0.0% | 2 | 8.3% | 24 | 6.4% |
| 1d | 1 | 100.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 0.3% |
| 1e | 1 | 20.0% | 1 | 20.0% | 2 | 40.0% | 1 | 20.0% | 5 | 1.3% |
| 1f | 0 | 0.0% | 1 | 50.0% | 1 | 50.0% | 0 | 0.0% | 2 | 0.5% |
| 1g | 3 | 100.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 3 | 0.8% |
| 2a | 12 | 80.0% | 2 | 13.3% | 0 | 0.0% | 1 | 6.7% | 15 | 4.0% |
| 2b | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 100.0% | 1 | 0.3% |
| 3a | 5 | 55.6% | 2 | 22.2% | 1 | 11.1% | 1 | 11.1% | 9 | 2.4% |
| 4a | 20 | 45.5% | 9 | 20.5% | 6 | 13.6% | 9 | 20.5% | 44 | 11.7% |
| 4b | 13 | 52.0% | 5 | 20.0% | 4 | 16.0% | 3 | 12.0% | 25 | 6.6% |
| 4c | 18 | 42.9% | 10 | 23.8% | 7 | 16.7% | 7 | 16.7% | 42 | 11.2% |
| 5a | 21 | 38.2% | 18 | 32.7% | 10 | 18.2% | 6 | 10.9% | 55 | 14.6% |
| 5b | 20 | 55.6% | 7 | 19.4% | 6 | 16.7% | 3 | 8.3% | 36 | 9.6% |
| 5c | 3 | 23.1% | 6 | 46.2% | 2 | 15.4% | 2 | 15.4% | 13 | 3.5% |
| 5d | 7 | 43.8% | 2 | 12.5% | 3 | 18.8% | 4 | 25.0% | 16 | 4.3% |
| 5e | 6 | 37.5% | 6 | 37.5% | 1 | 6.3% | 3 | 18.8% | 16 | 4.3% |
| 5f | 7 | 43.8% | 3 | 18.8% | 1 | 6.3% | 5 | 31.3% | 16 | 4.3% |
| 5g | 3 | 37.5% | 1 | 12.5% | 4 | 50.0% | 0 | 0.0% | 8 | 2.1% |
| 5h | 0 | 0.0% | 1 | 100.0% | 0 | 0.0% | 0 | 0.0% | 1 | 0.3% |
| 6 | 1 | 100.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 0.3% |
| 7 | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Total | 182 | 48.4% | 87 | 23.1% | 53 | 14.1% | 54 | 14.4% | 376 | 100.0% |

**Table 28.  continued**

Note:  Reason 3b is not included in the table since no participants referred to it.

Legend for Reason Codes

1a  =  Efficiency

1b  =  Redundancy

1c  =  Voice

1d  =  Topic sentence definition

1e  =  Cultural expectation or prohibition

1f  =  Training

1g  =  Consistency

2a  =  Organizational expectation

2b  =  Standard statement in most documents

3a  =  Standard part of a certain type of document

4a  =  Sound

4b  =  Flow

4c  =  Personal preference

5a  =  Agency

5b  =  Emphasis

5c  =  Audience awareness

5d  =  Comprehensibility, simplicity, or clarity

5e  =  Level of formality

5f  =  Author's purpose

5g  =  Topic

5h  =  Tact

6  =  No consideration given

7  =  No reason

*Reasons That Interacted with Verb Choices*

    *Reason 1c: Voice.* This reason refers specifically to whether a verb is active or passive.

C4: It's just that it is the active rather than passive, and in this case, most of what's being said is—you're trying to say it in an active voice, not to disguise it that way. Most of the things in the job description probably should be that way because that's the purpose of the job description is to describe what you're doing, that it's clear to the people reading it that these are your duties and responsibilities, so we aren't trying to soft-pedal anything in there usually.

C10: Active verb: "The first prompt expects" rather than "is expected."
Researcher: So just because it was active?
C10: Yeah.
Researcher: And why do you generally prefer the active?
C10: Well, usually shorter sentences, for one thing, and if you don't need the words, usually the meaning is clearer without them, I think.

M3: This is actually less passive voice.
Researcher: Why would you want to use less passive voice?
M3: Because the Air Force says to—I've been to SOS.

M5: It looks like, if I can just summarize from a glance, it's the active voice, versus the passive. . . .
Researcher: So why did you choose the active?
M5: Sounds better. Reading through it, it sounds better.

M6: Well, let's see, I didn't pick number 3 'cause it doesn't say who did it, or who is going to do it.
Researcher: OK.
M6: And really 1 or 2, it could have been either one. I don't know it just seemed, second one said what was needed. That's not passive, right?
Researcher: Right.
M6: So that's good. I don't know it just seemed straightforward, so that one sounded fine.
Researcher: All right.
M6: And since we were assigning action items, trying to say who was going to do the work, I don't know, I would say it first, who was actually doing it.

M7: It just flowed better. It's got a noun, it's got a verb . . . the last sentence doesn't emphasize the 4th Fighter Squadron, the action takers. To me, that's more passive kind of stuff. I don't do passive.

M10: Well, I'm criticized a lot in my writing because I tend to write in the passive instead of the active, and everyone is constantly telling me, "Keep out the *be*'s and try to write it in the present, the more present tense," and I'm not too sure if that one is, but I think it just sounds better as far as saying "will eliminate" instead of "will be eliminated." And again, I'm showing my ignorance here on English. To me it sounds better, and I think that's what I did for most of these.
Researcher: OK. Why do you think people tell you to avoid passive and write in the active? And why do you try to do that?
M10: Well, I think that's the way you're supposed to do it.
Researcher: Mm hmm, it is. So you just do it because that's the way you're supposed to or—
M10: It does sound better. I think it comes across stronger in writing if you don't always write in the passive, if it's more active. I'm not sure. You know anytime, especially in the military, if you send a letter up for someone else's signature and they want it changed, you kind of have to change

it. So sometimes that's what it is. The boss wants it written this way. And usually it does sound better.

The preceding quotations indicate that people chose active verbs over passive verbs for several different reasons. While some people chose active verbs simply because they were active, others explained that active verbs were stronger or more straightforward, while passive verbs hid what they were trying to say. Another reason given was that sentences written in the active voice were shorter and clearer than those written in the passive. According to one writer, it was especially important to use the active voice in certain genres, such as the job description, so that an employee's duties and responsibilities were clear. Other writers felt the active was better than the passive when it was important to emphasize the agent of the action, such as when work was being assigned, since the active voice put the doer first. Another reason for choosing the active voice was because the Air Force in general or a particular supervisor required it. Quite a few writers selected active verbs simply because they preferred them—they did not "do passive," as one writer put it. Many of these reasons will be discussed in greater detail below.

Finally, a common reason for selecting one verb over another, whether it was active, passive, or nominalized, was that it flowed or sounded better than the other choices. I will discuss this reason in more detail below under reasons 4a and 4b. In general, though, many writers picked active verbs just because they were active, but when pressed, they elaborated on their preferences, often echoing the textbook claims that the active voice is shorter, clearer, and more direct than the passive voice.

*Reason 2a: Organizational expectation or prohibition.* I already mentioned that some writers chose the active voice, not just because it was active, but because the Air Force as a whole or their particular supervisors expected it. Here are some additional comments illustrating this rationale:

C15: Because the verb is first.
Researcher: And what's your reason for putting the verb first?
C15: Because that's what we've been directed. They want to see what the action is and then what they do. . . . in these performance plans, they'd like the action first.
Researcher: And this is from Civilian Personnel, the way they want it?
C15: That's the way they recommended us to do it.

M2: I didn't like the first one because it didn't tell who was going to substitute; it just sounds kind of random. The Air Force likes things official, so if I try to put this sentence in—this is a cover sheet to a test package—so if I put this in there, they're going to say, "Oh, Joe Blow on the flight line's going to substitute this aircraft." They don't really like that.

M7: It said the same thing with less words, and that's what I like. Air Force writing is supposed to be as short and to the point as possible.

These excerpts indicate writers' understanding of why the Air Force recommended they use the active voice. C15 said the Civilian Personnel Office recommended using active voice in job descriptions. Presumably this was to make clear that an employee was responsible for the duties in the job description and not someone else, as C4 explained in a previous example. Evidently, the active voice was more critical in some documents than others. M2 supported this conclusion by saying that the active voice made things more "official." In some cases, the Air Force wanted to know specifically who was going to do something. I would assume that this was so the Air Force could hold the responsible persons accountable if they failed to do what they were required to do, such as to substitute a test aircraft if it were necessary. M7 reinforced what several other writers said about the active voice being shorter and more direct, but, in addition to stating it as a personal preference, she cast her reasoning in terms of institutional sanction: It was the way Air Force writing was supposed to be.

Some supervisors evidently enforced the way Air Force writing is supposed to be. As M10 said, "You know, anytime, especially in the military if you send a letter up for someone else's signature and they want it changed, you kind of have to change it. So sometimes that's what it is. The boss wants it written this way." Several people pointed out, however, that there was sometimes a discrepancy between what the Air Force expected and what their supervisors expected: "Even though I know the Air Force says, 'Don't use passive voice; try and use active,' when you send a letter up to be reviewed, people up here, half the time they'll rewrite it so it's passive. So, yeah, that's what they say in the *Tongue and Quill*, but that's not necessarily what gets out the door" (M6). She added that it did not matter to her whether she used active or passive; she just used whatever would pass muster with her boss. Clearly, if the people who review and sign the correspondence do not emphasize the active voice or even change the passive voice to active, their subordinates are going to use whatever is acceptable to them. As I will discuss below, there might even be valid reasons for using the passive voice.

*Reason 5g: Topic.* One valid reason for using the passive voice might be to maintain functional sentence perspective. Based on the literature, which suggests that the choice of active or passive voice may

depend on the flow of given and new information, I expected more writers to refer to the topic of the sentence as their reason for choosing the verb they did. However, only two writers referred to the topic in a total of four responses. Nonetheless, there was a significant interaction between topic and agentful passive verbs on the loglinear analysis. The following examples illustrate two writers' understanding of topic-comment flow:

> C2: Because the workshop is what was cut; the workshop is the focus, and I guess that would be the subject.

> C9: The topic is a little bit more evident here on the first one [option] than it is on the second one. Everything about this paper is the AMRAAM [Advanced Medium Range Air-to-Air Missile] board, but the double size, custom industry pack is really what the rest of this is talking about.

Both of these writers selected sentences containing agentful passive verbs because they placed what the writers felt was the topic in the subject position of the sentence. Here, for example, is one of the sentences C9 selected, along with the preceding sentence to show the topic-comment flow: "The expansion board can hold up to two standard size industry packs or one double size industry pack. One double size, custom industry pack—IP-AMRAAM—is required by the AMRAAM application." The comment of the first sentence is about the double size industry pack. The second sentence flows smoothly from the first sentence because the topic of the second sentence is the same as the comment of the first sentence—the double size industry pack. C9 does not introduce the new information about the AMRAAM application requiring the double size industry pack until after he restates the given information. He maintains functional sentence perspective. He does so not just with agentful passives, but with agentless ones as well as active verbs. In fact, on all of his verb choices, at least one of his reasons pertained to the topic; although only agentful passives had a statistically significant interaction with topic as a reason, I think it is important that C9 was flexible in his reasoning. He selected the verb type that was appropriate for the sentence, given that maintaining topic-comment flow was important to him. He did not slavishly adhere to a rule to use only the active voice; when it was appropriate, he used both agentless and agentful passive verbs.

For the most part, the writers in my study exhibited the same flexibility as C9. The fact that only three pairs of categories from the reason and verb choice variables had significant interactions reflects this flexibility. If there had been more interactions, then it would have meant that writers selected only one type

of verb for each reason they gave. Instead, they selected the most appropriate verb according to the situation. For example, verb choices for reason 1e (what was expected or prohibited) were fairly evenly distributed. The loglinear analysis lends further support to this notion, since the main effects for 11 out of the 24 reasons were significant—they is, they contributed significantly to the overall mean. Table 89 in Appendix D contains the results of the loglinear analysis of the main effects of the reasons for verb choices. Examples of representative comments for the significant reasons follow. When possible, I have tried to include examples of reasons used for all four types of verbs: active, agentless passive, agentful passive, and nominalized.

*Reasons That Contributed Significant Main Effects*

*Reason 1a: Efficiency.* This reason refers to concisness: getting the point across in the fewest number of words.

C16: It just seemed like . . . a better, more concise way. (active)

C16: It just seemed like it was the cleanest, giving the information that we needed in the fewest number of words. (agentless passive)

C9: This is a little bit briefer. (agentful passive)

M1: It says what's going to be done by what person, short and sweet. (agentful passive)

M9: Sometimes we try and leave a little bit of room for . . . a disclaimer, kind of leave a little room for that, sometimes. This is pretty typical. So we're still making the same point; we're just not making it quite as definite, so that if somebody wants to argue about it, we can say, "Well, from our point of view, this is right," or, "I see what you're saying; we'll modify it for you." So it's not as direct. A lot of times, yeah, we do wanna be direct but sometimes kind of wanna back away a little bit so there's a little room for correction or interpretation. (agentful passive)

M8: Because the third one is more concise and more—it's more concise and to the point. (nominal)

As I mentioned earlier, some writers said they chose the active voice because they felt it was more direct than the passive voice. However, writers used this same reason in justifying all of their verb choices, whether active, passive, or nominal. Even the same writer, such as C16 in the examples above, used basically the same reason to justify different choices. Writers selected the sentence that seemed the most concise, regardless of whether the verb was active or passive. This contradicts the advice in most textbooks, which usually asserts that the active voice is the shortest, most direct way of saying something.

This advice ignores the fact that agentless passive sentences are usually shorter than their active counterparts, but many writers recognized this fact. As participant M5 pointed out, the rules for using actives, passives, or nominals are not black and white: "There are instances when passive is better, and there are instances when maybe I don't want that verb to be as active, when smothered [verb] sounds better, and again, I go by what sounds right, so I don't want to say, 'Definitely don't ever use smothered verbs.' Maybe they may be necessary." However, when I pointed out to some writers that the agentless passive version was shorter than the active version they selected, they still stuck with their choice of active simply because it was active. The same was true for writers who said that nominals were shorter than their unnominalized versions: They preferred the nominalized versions because they were used to them.

It is interesting that some writers justified their choices of agentful passives and nominals as being briefer, shorter, more concise, or more to the point. These constructions are almost always longer than their active, unnominalized versions. So why would writers perceive them as being more concise? I think part of the reason goes back to how these constructions sounded to the writers. Writers might be more accustomed to hearing some things in the passive voice or in nominalized form. Participant C1 said he used smothered verbs "on occasion to describe things because I think that that's how you have to do it." Participant M1 admitted that the passive voice was the style of writing she was comfortable with: "that's how I think, and that's how it comes out from my fingers on the computer. . . . That's just how I read and write, maybe." Another writer, C12, claimed he just wrote the way he talked. Other writers explained that it was an effort sometimes to write in the active voice. According to M5, using the grammar tool in Microsoft® Word™ helped her identify instances of the passive voice when she did not even realize she was using it. She pointed out that "it's hard to get rid of a habit when you don't even know you've got it." She also called attention to the fact that many people might not understand what active and passive voice were or when to use them. Many of the participants in my study confused voice with tense; as M5 explained, if they did not know what the passive voice was, they could not avoid it when it was inappropriate.

As the quotation by M9 shows, some participants justified the use of the passive voice when they did not want to be too direct. She wanted to leave open the possibility she might be wrong so she could

correct or modify her statements, if necessary. Another participant, C3, echoed the same idea, saying that if he did not know the technical information he was writing about very well, he would use the passive voice to "kind of leave it wishy-washy . . . because I don't want to make it too positive."

*Reason 3b: Heading.* This reason was conspicuous by its absence; writers did not use it to justify their verb choices, which makes sense. Heading was more appropriate as a reason for using or omitting topic sentences. However, as I explained above, genre was an important, although not significant, factor in writers' choices of verbs. Some writers explained, for example, that the active voice was more appropriate in job descriptions than the passive voice. Additionally, there were significant differences in the frequency of verb types among genres in writers' actual documents. Writers simply did not refer to genre as a reason for choosing verbs as often as they referred to other reasons. Perhaps since the majority of documents were memos (49%), while the remaining 51% was spread across nine categories, many writers were not aware of generic differences, since they used primarily one or two genres.

*Reason 4a: Sound.* For this category and the next category, 4b, writers referred to the way the alternatives of verbs sounded to them, although with 4b, they specifically talked about the way choices flowed. Here are some examples alluding to the way choices sounded:

> M5: Sounds better. . . . I went by what sounded good rather than any other method of choosing. Reading them through, that sounded the better of the three choices. (active)

> C14: I think it sounds more friendly. (active)

> C14: It sounds more fluent; it sounds—I write a lot this way, the way things sound. (agentful passive)

> C14: It just sounds better to me. (nominal)

> C16: The first one really sounded better. (agentless passive)

> I will discuss these examples together with the 4b category, examples of which follow.

*Reason 4b: Flow.*

> C14: It has a nicer rhythm, not as choppy as those first two. (agentful passive)

> C6: Just seemed to flow better. . . . I guess I chose all of them on that basis; they seemed to flow the best. (active, nominal, agentless passive, agentful passive)

Apparently, the some of the writers who gave the responses in 4a and 4b based their choices on

rhythmic or acoustic principals such as balance or euphony. Their reasoning might lend support to Svartvik's assertion that agentful passives are used primarily in cases of heavy subjects to prevent unbalanced sentences. Perhaps writers chose the active voice with short subjects for the same reason: to avoid awkward sounding sentences in the passive voice. None of the writers could really articulate why a choice "sounded" or "flowed" better than the other options, except for one writer who suggested that the option he chose had a nicer rhythm.

While some writers might have literally based their choices on how the options sounded, their use of the words *sound* or *flow* may have been metaphorical. Participants might have simply been saying one choice *seemed* or *was* better than another choice, but they expressed this preference in terms that appeared to be less arbitrary or subjective. They could just as easily have said one choice *looked* better than another, although none did.

The large number of responses referring to "flow" or "sound" is interesting; taken together, they consisted of the largest group, accounting for 18.4% of the responses. The next largest category, agency, accounted for 14.6% of the responses. I am not sure where writers learned to base rhetorical choices on how they sounded. The Air Force does not teach it, and I believe few expository or technical writing courses in schools and universities do, either, although creative writing courses might. Perhaps when writers cannot remember the formal rules, they literally resort to playing it by ear. Or maybe they go by what they were accustomed to hearing in documents produced by their organization. For example, when I asked M2 why she preferred "to be in conformance with" over "conforms with," she explained, "Because to me, it's kind of the way you read it in the job we do . . . It's just a wording thing to me." When I asked her if "in conformance with" was a stock phrase in her organization's correspondence, she agreed that it was. If a particular way of saying something is repeated often enough in an organization, then maybe it becomes conventionalized, and any other way of saying it, even if it is more efficient, might sound wrong to the writer.

*Reason 4c: Personal preference.* Some respondents said they chose one type of verb over the other options because they liked it better. The following are examples of comments relating to personal preference:

C11: The middle one, I didn't care for the "by us." I think "we understand" is the reason why— "it is understood"—I like that better. (agentless passive)

C12: I just liked the wording on that better than the second one. (active)

C13: I don't know; I just liked it better. (agentful passive)

M9: I just liked the way it was phrased better. (nominal)

In some cases respondents picked an option out of default because they did not like the other choices they were given. In other cases they stated their reasoning more positively; they liked one choice better than the others. Once again, there was little distinction among types of verbs in the use of this reason. Although it was used slightly more for active verbs, its use was spread fairly evenly across the other verb types. These writers seemed not to be able to articulate why they preferred one option over another. Perhaps the real reason was buried too deeply in their tacit knowledge for them to access. It seems reasonable to assume that they learned their preferences somewhere, whether from everyday conversation, school, or writing on the job. They may have also been going by how the choices sounded; indeed, reasons 4a, 4b, and 4c were often used together.

*5a: Agency.* Agency was the largest single category of reasons given to justify verb choices, making up 14.6% of all the responses. Some typical comments follow:

C1: I think that it was important that I put in there that LAOE—here again, this was a shorter sentence, gets right to the point, and I just liked this better, "LAOE personnel studied it," rather than, "It was studied by."
Researcher: So you thought it was important that you have that in there?
C1: Well, this was a toot-your-horn type of deal, so that's why I'd feel in this case it'd be important to do that. (active)

C7: If you're going to take charge of something or take credit for something, give people credit who's doing it, be authoritative, don't be wishy-washy, don't use measly words, don't beat around the bush, don't take ten words to say what you can in one or two. (active)

C2: Because there's several different people that could give the workshop besides the STSC. Because that'd be a question he [boss] would ask, "Who's giving it, [inaudible], SCI, or STSC?" "Well, we're giving it." (agentful passive)

C10: Well, I'm giving these guys a product, and as a person, I would like to think I would be in the background. I want the product to be first on their minds, so the references to "I" and "the author," I would not have chosen them when I was initially writing it. (agentless passive)

C11: I guess placing the immediate need up front rather than the first one, why I chose it, and I guess it wasn't important to me to have "the ABDR function" in the sentence. (nominal)

M5: Well, you hear active is the better writing style, so I do try to do that, although the military uses the passive a lot more, and I've used the grammar tool in Word™, and I've found that, even when it's picked up some passive, that sometimes changing it to the active isn't the best for military writing styles. However, there have been instances where, yeah, it's best to identify the party doing what to whom. So I think I try to do in the active, because I think it's a better writing style; I think it does sound better instead of this vague whoever is going to do what. But in some cases in the military writing style—again, I go by what sounds good—passive works well, too. (general comment)

The pattern of choosing the verb appropriate to the situation is repeated in the above examples. As M5 points out, when it is important to specify who is doing what, the active is better, but sometimes the passive is more appropriate, especially "for military writing styles." Some of the examples below under 5e, level of formality, suggest what is meant by military writing style. For example, when writers were speaking for their organization or were having a higher ranking officer sign their documents, then the passive voice often seemed to be more appropriate. In other cases, as C10 explained, the product was more important than the producer, so he used an agentless passive verb to draw attention to the product, not himself. This reasoning is similar to the reasoning often used to justify the use of the passive in scientific research reports. Many writers did want the doer to be known, however, and chose either an active or an agentful passive verb. As C1 and C7 said in the above examples, when they wanted to take credit for something or toot their own horn, they used the active voice.

*5b: Emphasis.* The choice of agentful passive over active, in addition to naming the agent, seemed to be related to other factors, including emphasis, examples of which follow:

C3: I'm talking about the most important part of this, the MDA repair package. This one [option 1] has—well, I've got modifiers ahead of the MDA repair package there. (active)

C7: It gets into, right off, the BASH—introduces the BASH problem first instead of making Marcus the first important thing, and I think when I got this information, I was rewording it off—it's e-mail format—to my head or the base commander. It came from Marcus, so he was putting himself present tense, first person, most important thing, so I like the idea it wasn't Marcus that was the most important thing; it was, "we know there was a BASH problem;" that was the most important thing. (nominal)

M4: The first one used "we" and "we," and I didn't want the emphasis to be on us, since it was our mistake. And the third one once again uses "the Honor Guard," and I didn't want the emphasis to be on the Honor Guard. (agentless passive)

M4: By saying, "A checklist will be used, it's kind of proactive, kind of active, instead of the other ones, "We will use" and "the Honor Guard will use." . . . Sounds like we're really doing something about this problem. (agentless passive)

M7: I didn't like the first one because it didn't emphasize "express." So to me, that's a word order thing. To me, "express" needed to be emphasized. (agentful passive)

This reason was related to reason 5g, topic, but instead of making their choices to maintain topic-comment flow, writers seemed to make them to emphasize a word by putting it in the subject position of the sentence. For example, C7 wanted to emphasize "BASH," so he put it first in the sentence. M4, on the other hand, used an agentless passive verb to deemphasize the doer, since the doer had made a mistake. Instead, she wanted to emphasize the correction of the mistake, the use of the checklist. In both cases, however, she used an agentless passive verb. Here again is a recurring theme: the functions of different verb types are not fixed. In one instance a passive verb can emphasize a word, while in a different instance, it can de-emphasize a word by putting it last in the sentence, as in the case of an agentful passive, or by omitting it entirely, as in the case of an agentless passive.

*5d: Comprehensibility.* This category was a small but significant category of reasons for selecting verbs. Representative examples include:

C4: Just because it's just clearer, less words, and says the same thing. (active)

C5: If I was trying to explain this to someone new, I think they could understand that there paragraph a lot easier. The first one doesn't make any sense hardly at all. . . . So I think number three better explains, is easier to understand. (nominal)

C9: It's clearer too—it's more easily understood to the person that's reading it. He knows what it's talking about right there at the first. (agentful passive)

C14: That one's clearer; it sounds better, too. (agentless passive)

These examples contradict the textbook assertion that the active voice is clearer than the passive voice. Although many writers echoed this assertion, several writers felt that passive and nominal versions in some cases were clearer and easier to understand than the corresponding active versions. Part of the reason for this might have been that the passive or nominal versions were the customary ways of expressing a certain idea. Even though they were sometimes longer than the active versions, they were easier to process because of familiarity—they acted as a kind of shorthand. In other cases, they were literally shorter than or the same length as the active versions. For example, C5 preferred example (1) below to example (2).

(1) With the engine being shut down so quickly, it caused heat expansion to critical parts within the engine, causing damage to the core.

(2) With the engine being shut down so quickly, the heat caused critical parts within the engine to expand, damaging the core.

In both examples, the second clauses are the same length, while in example (1), the last clause, which contains the nominal "damage," is two words longer than the last clause of example (2). Obviously length was not the determining factor in C5's choice, however. To him, example (1) was easier to understand. I suspect the nominals "heat expansion" and "causing damage" were commonly used phrases in his organization whereas the verbalized versions were not used, making them more difficult to understand.

*5e: Level of formality.* As I alluded to previously, the level of formality of a statement was used in some cases to justify its selection over other comparable statements. The following examples illustrate this type of reasoning:

C3: A lot of our writing has to be very impersonal. (active)

C9: The "I've" really makes it a different—what would you say?--it makes it more personal than this over here. I would pick this one; this one's more formal. (agentful passive)

C11: The second one, you inserted "you", and I felt that there wasn't a "you;" being personal or something. The request is coming from a larger body than just one person. (agentless passive)

M9: I don't ever want to use first or second person. We always want to keep it in third person sense; it's more professional that way, and it's less as personal. That way if somebody calls in, "Why did you accuse *me* of doing this," or not necessarily an accusation, because it's just stating, "Hey, this is this; this is what we have." So, it's a big no-no to write in first or second person in these reports. I wrote a letter yesterday to somebody where I did use second person because he requested some parts, and I sent them to him and said, "I hope that things go well with this for you. Please let me know what else I can do because I have a lot more information; I just can't give it to you unless you ask." So for that reason, that was personal, from me to him, not from this lab to this office. Actually, in this case, this report, it would be from this lab to this engineer— not [name], but this engineer. (agentless passive)

M11: I like it just because it's more personal. (nominal)

This may sound like a broken record, but again, writers' choices were flexible. Sometimes an active verb seemed impersonal, while sometimes it seemed too personal. In other cases, a nominal seemed more personal than its verbal counterpart. Writers seemed to choose that sentence containing the type of verb that was the most appropriate for the situation in which the document was to be used. If a document

was a formal report presenting the findings of one organization to another, as in the case of M9's comment, then a formal tone was required, and M9 felt that the passive voice and the third person conveyed formality better than the active voice and the first person. The passive voice was commonly perceived to be more formal and professional than the active voice. Several writers said they used it when speaking for their organization or for a high ranking officer. However, when M9 wrote person to person, not as a representative of her lab, then she used the active voice and the first person to convey a more personal tone.

*5f: Accord with author's purpose.* The responses in this category expressed the belief that one statement conveyed the author's purpose better than the other options, as these examples show:

M1: It just said what I wanted it to say. (active)

M6: The points I wanted to convey. (agentless passive)

M6: [Option] 3 conveyed what I really wanted to say as far as to provide proof of his allegations, meaning more of the paper evidence. (nominal)

These responses reflected that authors recognized the shades of meaning in different versions of a statement. While I tried to make the options in the writing instrument grammatically and semantically equivalent, semantic differences did arise because of the differences in word order and the resulting emphasis different sentence slots carried. Semantic differences were especially likely to result from verbalizing a nominalization. For example, C15 explained that "accomplishes software development and testing" did not mean the same thing as "develops and tests software." To him, the first expression implied two separate activities, while the second implied only one. Consequently, in cases such as the above, writers usually chose the sentence they had originally written because it said what they intended to say, while the other sentences, even though they were grammatically the counterpart of the writers' original sentences, did mean the same thing.

*Reason 6: No Consideration Given*

Only one participant specifically gave this response when asked why she chose a particular option. However, another writer in her general comments about why she used certain features explained that she did not consciously consider her alternatives. These two comments follow:

M6: I usually don't think about my writing. So, when you write letters or when I've written

letters that have to be signed out by the colonel or something like that, for the most part you don't ever use the "we" or "us;" it's always the "it" or that kind of thing. For a general you don't ever; if you put it that way, they'll usually change it anyway. (agentless passive)

C6: I probably don't think about those particular structures every time I write a sentence. Probably the topic, what I'm referring to—I guess I just don't think about it in each thing I say. I just do it. If it sounds O.K., and I'll think, "Oh, I'll put this here and that there," that's basically how I do it. It's more of a judgment call I guess; it's not a real structured thought pattern. (general comment)

I am not quite certain if M6 was trying to say that she usually did not think about her writing or that she did only in certain instances. Based on her other comments, the latter is probably the case. She was the writer who said that usually someone would not be critiquing her writing. However, perhaps in cases where both she and her writing would be under close scrutiny, such as when she was writing for a colonel or a general, she did pay more attention to the way she wrote. She echoed other writers who said they would not use the active voice or the first person when their document was to be signed by a high-ranking officer. The perception seems to be that high-ranking officers will sign only documents that are formal and impersonal, and apparently this perception was reinforced by the officers themselves changing documents from the first to the third person. In cases such as these, perhaps the colonels or generals were speaking for their organizations and not for themselves. In my experience as executive officer for two different colonels, when senior officers write to each other or person to person to a subordinate, such as in letters of appreciation or commendation, they write quite personally and informally. They address the recipients by their first name and use the first person and the active voice.

I suspect that C6's explanation of how she wrote is typical of how many people write. Just as an experienced basketball player does not consciously think about the laws of physics when she shoots, C6 did not use a "structured thought pattern," deliberately choosing active voice or passive voice. The basketball player just shoots, and C6 says she just wrote. I believe that, as the basketball player draws on her tacit knowledge of basketball to shoot, the writers in this study drew on their tacit knowledge of writing in the Air Force to write. I will discuss the implications of this possibility for Air Force writing instruction in the next chapter.

## CHAPTER 5

## CONCLUSIONS AND IMPLICATIONS

### Tacit Versus Explicit Knowledge

Much of business and technical writing pedagogy, as Barabas points out (18), is based on what academicians consider good writing, not what writers and readers in business and industry consider good writing. In reviewing the research on desirable and undesirable qualities in business and technical writing, Barabas found a significant discrepancy between researchers' conclusions and her own informal surveys conducted in the technical writing courses she taught in research and development organizations. While researchers such as Goodin and Swerdlow emphasized appropriate form, grammar, and style, Barabas found that her course participants were just as concerned about content, more so than the Goodin and Swerdlow survey that she cites indicated (18, 19). That is, for technical and business writers, *what* and *why* something is said is equally important as *how* it is said (20). The problems Barabas' writers identified in writing were not due to poor writing skills but "to a lack of general *communication* skills, such as the ability to analyze one's audience and purpose to determine what information is most appropriate to include and how best to convey that information" (20, emphasis in original) and "a failure to understand the pragmatic functions that writing serves in a social context and the ways in which those functions, in turn, influence the social context" (24). Barabas concludes that "the conventions and criteria of academic writing may not be transferable to other discourse situations" (25).

The distinction between tacit and explicit knowledge may help explain the discrepancy between what is acceptable writing for an organization and the textbook (i.e., rule-driven) definition of good writing, even when the textbook is the organization's own. A large body of research by people such as Krashen, an expert on second language acquisition, suggests people do not learn how to do things such as write by being told the rules (Winsor 168). Rather, they learn by doing and by inferring the rules as they go. For example, knowledge of the rules of football does not enable one to play football—only playing football does. However, other research suggests it is "possible to teach explicit rules for format, organization,

composing strategies, and some editing" (Winsor 168). It may also explain why few people consciously think about the rules of writing—the rules they have learned are tacit, not explicit.

While explicit training may not directly help people learn to write, it may indirectly facilitate that learning (Winsor 169). Learning the rules in writing classes may make it easier to recognize them on the job. Furthermore, writers may internalize the rules for writing on the job and then apply to them the labels they learned in school. For example, most people are taught about topic sentences in school, but few people consciously think about them as they write. When they learn to write on the job, they may notice that most paragraphs begin with a general statement of the topic. Beginning paragraphs this way results from their tacit knowledge. When forced to explicate their tacit knowledge, as they were required to do in my interviews, they label it with the name they learned in school: a topic sentence.

This study was motivated by pedagogical concerns, and I believe its results have definite implications for pedagogy. Many of the writing features the Air Force teaches are directed at improving readability rather than rhetorical effectiveness. However, the results of this study demonstrate that the writers surveyed were much more rhetorically aware than the writing pedagogy allows for. I believe these results indicate a need to teach students to be more sensitive to the writing context instead of teaching them that they should use the same features in all situations regardless of context.

The following three sections summarize the major findings of this study concerning Air Force writers' use of topic sentences and verbal style and the implications these findings have for writing instruction in the Air Force's PME schools.

## Topic Sentence Use

Approximately half of the paragraphs in the corpus I examined contained topic sentences. While this was significantly different from three previous studies, part of the difference was probably due to different types of writers and writing (Braddock) and different methods of identifying topic sentences (Popken). My results were quite similar to the Freisinger and Petersen study, which examined similar types of writers and writing. On the whole, Air Force writers' use of topic sentences was about average.

Several factors related to the documents constrained the use of topic sentences. There were significant differences in topic sentence frequency according to the presence of headings, the position of paragraphs in the document, and the length of paragraphs. Additionally, there were significant differences in the placement of topic sentences. These differences indicate that writers included topic sentences based on rhetorical considerations. If headings were used, as was often the case in documents with special formats, then topic sentences, as a rule, were not used. Headings seemed to perform the same function of marking the macrostructure of a document as topic sentences. First paragraphs were much more likely to contain topic sentences than last paragraphs. Since first paragraphs usually introduced the topic of the whole document, it seemed to be more important for them to have a topic sentence than the last paragraph, which often contained just a point of contact. The relationship between paragraph length and topic sentence frequency was not linear. For documents with an average frequency of topic sentences, paragraph length decreased when there was no topic sentence and increased when there was, but the reverse was true for documents with a high topic sentence frequency. These differences seemed to be due more to the writers than to the documents. Finally, my study confirmed Freisinger and Petersen's finding that the vast majority of topic sentences are placed in the first T-unit. Since I did not ask writers why they did this, I can only speculate. Placing the main idea first and then expounding upon it may have been the most natural thing for them to do in most cases, although clearly there were exceptions (e.g., the writer who stated she deliberately put the bottom line at the bottom).

Two additional rhetorical factors pertaining to documents were their audience and genre, for which there were significant differences in topic sentence frequency. However, the difference with respect to audience was probably largely due to an interaction with genre. Documents written to internal and external audiences each had topic sentence frequencies close to the mean, while documents written to both types of audience, mainly job descriptions, had the lowest frequency of topic sentences. However, job descriptions also had the highest percentage of headings.

There was only one variable pertaining to characteristics of the writers for which significant differences in topic sentence use appeared: PME attendance. SOS graduates used topic sentences more than ACSC graduates. However, there were no significant differences between those who had attended

PME and those who had not. While it is good that SOS graduates used topic sentences so much (62.0%), it would seem that ACSC graduates would have used them the most, since they had attended a higher level of PME, and that both levels would have used them significantly more than non-attendees, if the communication portion of PME were effective. Since this was not the case, it appears that PME attendance had no effect on the extent to which writers used topic sentences. Of course, communication is not the only subject taught in PME, especially at ACSC where the emphasis is on air power employment. For the communication segment to be effective, it might require more time and emphasis. It also needs to be reinforced when graduates return to their jobs. If supervisors do not emphasize topic sentences, then other factors will take precedence, as was clearly the case in this study.

There was no correspondence between the extent to which subjects said they tried to use topic sentences and the actual frequency of topic sentences in their documents. It might have been difficult for people to judge whether they thought about using topic sentences or not. This difficulty probably stemmed from the fact that asking such a question required people to explicate their tacit knowledge of how they wrote, something that previous researchers have shown is difficult to do.

Another task that required subjects to draw upon their tacit knowledge was to explain their reasons for including or excluding topic sentences in their paragraphs. Although the purpose of the task was to try to get at the reasons writers might have had when they composed their documents, since I asked them after the fact, I believe that in most cases they were not able to tell me what they were thinking at the time because they did not consciously consider whether to use a topic sentence. Instead, I believe that the responses subjects gave me were justifications for what they had done. The task did seem to be more successful at getting writers to explicate their tacit knowledge, however.

Only 3 types of reasons/justifications writers gave were statistically significant out of the 24 I was able to classify. The first simply referred to the cultural definition of topic sentence found in many textbooks. That is, writers justified their use of topic sentences because the American discourse community, the conventions of which they had learned in school and college, expected them to. It would appear that, if people could refer to the definition of topic sentence, then the teaching of it had been successful.

The second type of justification referred to the topic of a paragraph. This type of response may have actually reflected subjects' confusion about what I had asked them. Many subjects seemed to think I wanted to know why they decided a sentence was a topic sentence. They responded by restating the topic of the paragraph. Although some people may have included a topic sentence to state the main topic, the responses I obtained did not indicate this. Perhaps rephrasing the question might have elicited response more along the lines I was looking for.

The third and final reason given concerning the use or lack of use of topic sentences referred to headings. Subjects justified the omission of topic sentences because paragraphs contained headings.

## Use of a Verbal Style

As with topic sentence use, the use of a verbal style by the writers in this study was about average. The use of passive verbs, while high, was not significantly higher than that found in similar studies. I could not find any comparable statistics in previous studies on the frequency of nominals, so my study sets a baseline for future studies. The frequency of nominals was actually quite low, although it varied according to the type of document.

As was the case with topic sentences, certain rhetorical features, genre in particular, seemed to be related to the frequency of variables measuring verbal style. The active voice was more appropriate in documents written about what a person did or was expected to do, such as awards and job descriptions. The use of active verbs seemed to decrease as the formality of documents increased. Indeed, subjects cited formality as a reason for selecting passives or nominals. In formal documents, subjects may have seen themselves as speaking for their organization and used passives and nominals more, since they are often perceived as elements of bureaucratic language. In addition, some members might have seen the use of the nominal style as a badge for obtaining and maintaining membership in the Air Force discourse community or one of its subcommunities.

There were significant differences in verbal style among writers categorized according to demographic variables. Some of the difference might have been due to different discourse communities' conventions, such as differences between engineers and operations specialists, or between scientific majors

and business majors. While the Air Force might officially advocate the active voice, different subcultures within the Air Force seemed to have their own unwritten conventions for the use of active, passive, and nominalized verbs.

Part of the differences might have been because of the cultural functions the passive voice and nominals served in some groups. Use of passives and nominals seemed to serve as status symbols for junior officers, workers, and civilians lacking college degrees. Since bureaucratic language is notorious for being highly nominalized, people in these groups may have overused the nominal style as they aspired to become accepted members of the military discourse community. Once they were full-fledged members, they used passives and nominals less and probably more appropriately to suppress their own agency when they spoke for their organization and not for themselves.

As was true for topic sentences, PME graduates did not write significantly differently from non-graduates with respect to verbal style. Instead, changes from a nominal to a verbal style seemed to come with advancement in grade and attainment of authority and responsibility.

Concerning writers' stated preferences and their actual practice, once again there was no clear correspondence between the types of verbs subjects said they tried to use and what they actually used. Some subjects might have been unsure what active and passive verbs were. This was definitely the case with smothered verbs. It might also have been too difficult for people to tap into their tacit knowledge of how they wrote and estimate the extent to which they tried to use certain features.

Subjects seemed to be more successful explaining their reasons for choosing one type of verb over another than with estimating how much they used them. Even though the task of explaining their reasons seemed to require subjects to draw upon their tacit knowledge of how they wrote, they gave 22 different types of reasons that I was able to classify, excluding the "no reason" and "did not think about it" responses. That is 21 more reasons than the one possible reason Air Force writing instruction offers dealing with agency. There were significant interactions between the type of reason given and the verb chosen for three pairs of categories: voice and active verbs, institutional expectations and active verbs, and topic and agentful passive verbs. The first two interactions reflected subjects' awareness of the difference between active and passive voice and the Air Force's admonition to use the former. Based on this

interaction, it would appear that the advice to use the active voice was at least partly successful. Whether the advice was learned from taking school or college English classes, attending PME, or from studying on their own cannot be determined. As I have already pointed out, there were no significant differences in verbal style between people who had attended PME and those who had not.

The third interaction reflected a fairly sophisticated understanding of the distribution of given and new information. However, while significant, the reason was given by only two subjects. If more Air Force writers understood functional sentence perspective, a lot could probably be done to improve the readability of Air Force documents.

In addition to the three interactions, 11 of the types of responses contributed significant main effects to the model of reasons and verb choices. Rather than summarize each one, I will summarize the major categories and highlight some of the most significant types of reasons used by subjects.

The first major category was that of reasons referring to cultural conventions, in particular the convention of efficiency. Writers explained their verb choices in terms of directness, conciseness, brevity, or succinctness. Interestingly, they did so not just for active verbs, which textbooks usually claim are the most direct and concise, but for passive and nominalized verbs as well. Brevity and succinctness may be more subjective and perceptual than the textbook authors would have their readers believe. Usually agentless passive sentences do contain fewer words than their active counterparts, a fact that most textbooks omit, but agentful passives and nominals are usually longer. Writers might have perceived them as being more concise because they were more accustomed to hearing them, while they were not used to the active versions. Thus, the active versions might have taken more time and effort to process and therefore seemed more wordy. Ironically, the longer passive and nominal version seemed to operate as a kind of shorthand.

The second major group of reasons writers used to explain their verb choices referred to personal conventions. Writers chose some verbs because they sounded or flowed better than other choices, or simply because they preferred them. While writers who gave reasons referring to acoustics or rhythm might have been referring to the balance of the sentence, I believe it is more likely they could not explicate their tacit knowledge. They may have internalized the discourse conventions in their organization to the extent

that they could not access their knowledge of the conventions and had to resort to playing it by ear. The same was often probably true with personal preference: What subjects sometimes thought were their personal preferences they might actually have learned from working and writing in the organization.

The last major category of reasons referred to situational conventions, including agency, emphasis, comprehensibility, level of formality, and purpose. As was also evident from the other major categories, many writers selected the verb that seemed the most appropriate to them based on the criteria that were important to them in a rhetorical situation. If it was important to them to emphasize or deemphasize the agent of an action, they chose their verb accordingly. Most writers were not tied to hard and fast rules for using only certain kinds of verbs in all or most situations. Many of them were quite sophisticated rhetorically.

Finally, some writers admitted they just did not think about why they chose one construction over another. These writers made no bones about the fact that they flew by the seats of their pants—that is, they went on instinct or their tacit knowledge. This tacit knowledge may have been so deeply embedded that it was not possible for some writers to verbalize it.

Now that I have summarized the major conclusions from this study, what does it all mean? Here are some of the implications I see that these conclusions have.

## Implications

Because in this study I found no significant difference between writers who had attended PME and those who had not, the Air Force should study the effect of its writing instruction in greater depth and breadth under more controlled conditions than I did. If the communication block of the PME curriculum truly has no effect, or, as in the case of topic sentences in this study, a negative effect, then it is just wasting students' and instructors' time and taxpayers' dollars. Furthermore, my results showed that as people attained higher positions of responsibility, their use of at least some desirable writing features, such as the active voice, increased. If people are going to write better with time and experience, but not through direct instruction, then the communication segment of PME might not even be needed. It might be possible to eliminate it, with the expectation that people would learn what they needed to know on the job, just as

Winsor's engineering students learned to write like engineers by writing engineering reports during their internships, not by taking technical writing classes.

If eliminating communication training in PME is not an option, then my results suggest that it may need to be modified to reflect the realities of writing on the job in the Air Force. Many situational and rhetorical factors come into play when an Air Force member writes a document: the genre of the document, the types of people who will review it, the audience it is intended for, the audience's prior knowledge, the subject, the author's purpose, the time allowed to write it, and the technology available to produce it. PME communication training does not consider most of these factors, and indeed, it would be difficult to do so without creating a real writing environment. It is difficult to include all of these factors in cases or scenarios. However, it is by interacting with these factors that people learn to write in an organization. They learn to write by writing about specific subjects to specific audiences using specific modes. They learn by trial and error what is most acceptable in given situations or with certain people. They internalize the conventions of the organization, which become part of their tacit knowledge.

With some difficulty, I was able to get some of the writers in this study to explicate their tacit knowledge. The reasons and justifications they gave for the use of topic sentences and active, passive, and nominalized verbs were far more flexible and sophisticated than the rules presented in PME communication training. These rules are fairly black and white: Begin every paragraph with a topic sentence; always use the active voice unless the doer is obvious, unknown, unimportant, or better left unnamed; and never use smothered verbs. However, as one writer pointed out, most situations are not black and white. Sometimes topic sentences are not necessary. In many cases other than those having to do with the agent, the passive voice is a better choice than the active voice, and sometimes smothered verbs are better because that is what readers are accustomed to.

The writers who participated in my study expressed many valid reasons for breaking the rules, and if Air Force communication training is to be effective, it needs to teach writers to be flexible, to choose the feature that is most appropriate to the situation, not to slavishly adhere to rules without regard for the situation. Writing instruction needs to be as sophisticated as the most sophisticated writers in the organization. Defining topic sentences and the passive voice is difficult, as I found out by analyzing the

writing samples in this study and as was indicated by the many concepts of topic sentence expressed by the writers of the samples.

Two examples of features the Air Force might stress more are the use of headings and the distribution of given and new information. Both of these features have been demonstrated in the research literature to improve readability. Specific, informative headings can be more effective than topic sentences at highlighting the main ideas of a document. In addition, headings are easier to see than topic sentences and make locating information in a document easier. Maintaining the proper flow of given and new information in a document can also help improve its readability, but writers need more tools in their repertoire than the active voice to accomplish it. They also need to learn to use the passive voice effectively to place their topics in the appropriate position in the sentence, as two of the subjects in this study had learned to do. Most importantly, writers need to be taught that readability does not depend on following certain rules such as using headings or maintaining a coherent string of subjects; instead, they need to be taught that readability depends on the context and the reader. Many of the writers in this study demonstrated they already understood this.

The writing instruction provided by the Air Force PME schools seems to take a checklist approach, assuming that if all items on the checklist are followed, good communication will result. While using a checklist is appropriate for flying or maintaining an aircraft, it is not the best approach to use with writing. Good communication does not necessarily result from adhering to textbook rules for writing. A better analogy for writing is that of a pilot's situational awareness, adapting to the exigencies of the situation as they arise. Many of the writers I spoke to demonstrated that they were adept at adapting to different writing situations. Although I forced them to consider the reasons for certain of their rhetorical choices, I believe few of them consciously considered their reasoning as they composed. Instead, I believe they wrote using the tacit knowledge they had gained from experience writing in their organizations. The real test, of course, would have been to measure how successful their writing was as judged by their readers and supervisors. I will leave that for another study, but I suspect that it would still show that successful writing in the Air Force requires knowledge of when to follow the rules (e.g., always use topic sentences and active verbs, never use passive verbs or nominalizations) and when to break them.

# LITERATURE CITED

Alexander, L. G. *Longman English Grammar*. London and New York: Longman, 1988.

Barabas, Christine. *Technical Writing in a Corporate Culture*. Norwood: Ablex, 1990.

Bizzell, Patricia. "Cognition, Convention, and Certainty: What We Need to Know About Writing."
    *Pre/Text: The First Decade*. Pittsburgh Series in Composition, Literacy, and Culture. Ed. Victor
    J. Vitanza. Pittsburgh: U of Pittsburgh P, 1993. 65-92.

Boiarsky, Carolyn R. *Technical Writing: Contexts, Audiences, and Communities*. Boston: Allyn, 1993.

Braddock, Richard. "The Frequency and Placement of Topic Sentences in Expository Prose." *Research in
    the Teaching of English* 8 (1975): 287-302.

Broadhead, Glenn J., and Richard C. Freed. "Discourse Communities, Sacred Texts, and Institutional
    Norms." *CCC* 38 (1987): 154-65.

---. *The Variables of Composition: Process and Product in a Business Setting*. Studies in Writing and
    Rhetoric. Carbondale: Southern Illinois UP, 1986.

Brown, Robert L., Jr., and Carl G. Herndl. "An Ethnographic Study of Corporate Writing: Job Status as
    Reflected in Written Text." *Functional Approaches to Writing: Research Perspectives*. Open
    Linguistics Series. Ed. Barbara Couture. London: Frances Pinter Publishers, 1986. 11-28.

Chomsky, Noam. "Remarks on Nominalization." *Readings in English Transformational Grammar*. Ed.
    Roderick A. Jacobs and Peter S. Rosenbaum. Waltham, MA: Ginn, 1970. 184-221.

Cohen, Jacob. "A Power Primer." *Psychological Bulletin* 112 (1992): 155-159.

Colomb, Gregory G., and Joseph M. Williams. "Perceiving Structure in Professional Prose: A Multiply
    Determined Experience." *Writing in Nonacademic Settings*. Perspectives in Writing Research.
    Ed. Lee Odell and Dixie Goswamie. New York: Guilford, 1985. 87-128.

Cornelis, Louise H. "The Passive Voice in Computer Manuals: A New Perspective." *Journal of Technical
    Writing and Communication* 25 (1995): 285-301.

Cross, Geoffrey A. "The Interrelation of Genre, Context, and Process in the Collaborative Writing of Two
    Corporate Documents." *Writing in the Workplace: New Research Perspectives*. Ed. Rachel
    Spilka. Carbondale: Southern Illinois UP, 1993. 141-152.

Doheny-Farina, Stephen. "Creating a Text/Creating a Company: The Role of a Text in the Rise and
    Decline of a New Organization." *Textual Dynamics of the Professions: Historical and
    Contemporary Studies of Writing in Professional Communities*. Ed. Charles Bazerman and James
    Paradis. Madison: U of Wisconsin P, 1991. 306-335.

Duin, Ann Hill, and Craig J. Hansen. "Setting a Sociotechnological Agenda in Nonacademic Writing."
    *Nonacademic Writing: Social Theory and Technology*. Ed. Ann Hill Duin and Craig J. Hansen.
    Mahwah, NJ: Erlbaum, 1996. 1-15.

Faigley, Lester. "Nonacademic Writing: The Social Perspective." *Writing in Nonacademic Settings. Perspectives in Writing Research.* Ed. Lee Odell and Dixie Goswamie. New York: Guilford, 1985. 231-248.

Freisinger, Randall R., and Bruce T. Petersen. "Toward Defining 'Good Writing: A Rhetorical Analysis of the Words, Sentences, and Paragraphs in 16 Industrial Scripts." *Technical Communication: Perspective for the Eighties.* Proc. of the Technical Communication Sessions at the 32nd Annual Meeting of the Conference on College Composition and Communication, Mar. 1981, Dallas, TX. Ed. J. C. Mathes and Thomas E. Pinelli. National Aeronautics and Space Administration. Springfield, VA.: National Technical Information Service, 1981. 291-304.

Hacker, Diana. *The Bedford Handbook for Writers.* 3rd ed. Boston: St. Martin's, 1991.

Hake, Rosemary L., and Joseph M. Williams. "Style and Its Consequences: Do as I Do and Not as I Say." *CE* 43 (1981): 433-51.

Holland, V. M. *Psycholinguistic Alternatives to Readability Formulas.* Washington, DC: Document Design Project, 1981.

Huckin, Thomas N. "A Cognitive Approach to Readability." *New Essays in Technical and Scientific Communication.* Baywood's Technical Communications Series. Ed. Paul V. Anderson, R. John Brockman, and Carolyn R. Miller. Farmingdale, NY: Baywood, 1983. 90-108.

Jacobs, Roderick A., and Peter S. Rosenbaum. *English Transformational Grammar.* Waltham, MA: Blaisdell, 1968.

Kaplan, Jeffrey P. *English Grammar: Principles and Facts.* 2nd ed. Englewood Cliffs, NJ: Prentice-Hall, 1995.

Kent, Thomas. "On the Very Idea of a Discourse Community." *CCC* 42 (1991): 425-45.

Keyser, Samuel Jay, and Paul M. Postal. *Beginning English Grammar.* New York: Harper & Row, 1976.

Kies, Daniel. "Some Stylistic Features of Business and Technical Writing: The Functions of Passive Voice, Nominalizations, and Agency." *Journal of Technical Writing and Communication* 15.4 (1985): 23-33.

Kleimann, Susan. "The Reciprocal Relationship of Workplace Culture and Review." *Writing in the Workplace: New Research Perspectives.* Ed. Rachel Spilka. Carbondale: Southern Illinois UP, 1993. 56-70.

Lay, Mary M., et al. *Technical Communication.* Chicago: Irwin, 1995.

Lees, Robert B. *The Grammar of English Nominalizations.* The Hague: Mouton, 1968.

Levi, Judith. *The Syntax and Semantics of Complex Nominals.* New York: Academic, 1978.

Lindemann, Erika. *A Rhetoric for Writing Teachers.* 3rd ed. New York: Oxford UP, 1995.

Markel, Michael H. *Technical Writing: Situations and Strategies.* 3rd ed. New York: St. Martin's, 1992.

Mason, Emanuel J., and Bramble, William J. *Understanding and Conducting Research: Applications in Education and the Behavioral Sciences.* New York: McGraw-Hill, 1978.

Norman, Geoffrey R., and David L. Streiner. *Biostatistics: The Bare Essentials.* St. Louis: Mosby, 1994.

Odell, Lee. "Beyond the Text: Relations between Writing and the Social Context." *Writing in Nonacademic Settings.* Perspectives in Writing Research. Ed. Lee Odell and Dixie Goswamie. New York: Guilford, 1985. 249-280.

Odell, Lee, and Dixie Goswamie. "Writing in a Nonacademic Setting." *RTE* 16 (1982): 201-223.

Odell, Lee, Dixie Goswamie, and Anne Herrington. "The Discourse-Based Interview: A Procedure for Exploring the Tacit Knowledge of Writers in Nonacademic Settings." *Research on Writing: Principles and Methods.* Ed. Peter Mosenthal, Lynne Tamor, and Sean A. Walmsley. New York: Longman, 1983.

Odell, Lee, Dixie Goswamie, Anne Herrington, and Doris Quick. "Studying Writing in Non-Academic Settings." *New Essays in Technical and Scientific Communication: Research, Theory, Practice.* Baywood's Technical Communications Series. Ed. Paul V. Anderson, R. John Brockmann, and Carolyn R. Miller. Farmingdale: Baywood, 1983. 17-40.

Popken, Randall. "A Study of Topic Sentence Use in Technical Writing." *The Technical Writing Teacher* 18 (1991): 49-58.

Porter, James E. "Reading Presences in Texts: Audience as Discourse Community." *Oldspeak/Newspeak: Rhetorical Transformations.* Ed. Charles Kneupper. Arlington: Rhetoric Society of America, 1985. 241-256.

Redish, Janet C. "Readability." *Document Design: A Review of the Relevant Research.* Ed. D. B. Felker. Washington, DC: Document Design Project, 1980.

Riley, Kathryn. "Passive Voice and Rhetorical Role in Scientific Writing." *Journal of Technical Writing and Communication* 21 (1991): 239-257.

Rodman, Lilita. "The Active Voice in Scientific Articles: Frequency and Discourse Functions." *Journal of Technical Writing and Communication* 24 (1994): 309-331.

Rogers, Hiluard G., and F. William Brown. "The Impact of Writing Style on Compliance with Instructions." *Journal of Technical Writing and Communication* 23 (1993): 53-71.

Schiappa, Edward. "Response to Thomas Kent, 'On the Very Idea of a Discourse Community.'" *CCC* 43 (1992): 522-523.

Selzer, Jack. "What Constitutes a Readable Technical Style?" *New Essays in Technical Writing and Communication: Research, Theory, and Practice.* Baywood's Technical Communications Series. Ed. Paul V. Anderson, R. John Brockman, and Carolyn R. Miller. Farmingdale, NY: Baywood, 1983. 71-89.

Smart, Graham. "Genre as Community Invention." *Writing in the Workplace: New Research Perspectives.* Ed. Rachel Spilka. Carbondale: Southern Illinois UP, 1993. 124-140.

Suchan, J., and R. Colucci. "An Analysis of Communication Efficiency between High-Impact and Bureaucratic Written Communication." *Management Communication Quarterly* 2 (1989): 454-484.

Svartvik, Jan. *On Voice in the English Verb.* The Hague: Mouton, 1966.

125

Trammell, M. K. "Enlightened Use of the Passive Voice in Technical Writing." *Technical
Communication: Perspective for the Eighties.* Proc. of the Technical Communication Sessions at
the 32nd Annual Meeting of the Conference on College Composition and Communication, Mar.
1981, Dallas, TX. Ed. J. C. Mathes and Thomas E. Pinelli. National Aeronautics and Space
Administration. Springfield, VA.: National Technical Information Service, 1981. 181-190.

United States. Dept. of the Air Force. Air Force Handbook 37-137, *The Tongue and Quill.* Ed. Gwen
Story. [Washington, DC?]: GPO, 1994.

Vandenberg, Peter, and Colette Morrow. "Intertextuality or Intratextuality? Rethinking Discourse
Community Pedagogy." *The Writing Instructor* 14 (1994): 17-24.

Vendler, Zeno. *Adjectives and Nominalizations.* Papers on Formal Linguistics 5. The Hague: Mouton,
1968.

Warriner, John E. *English Grammar and Composition: Complete Course.* New York: Harcourt Brace
Jovanovich, 1982.

Wilds, Nancy G. "Writing in the Military." *Worlds of Writing: Teaching and Learning in Discourse
Communities of Work.* Ed. Carolyn B. Matalene. New York: Random House, 1989. 188-200.

Williams, Joseph M. *Style: Toward Clarity and Grace.* Chicago Guides to Writing, Editing, and
Publishing. Chicago: The University of Chcago Press, 1990.

Winsor, Dorothy. "Writing Well as a Form of Social Knowledge." *Nonacademic Writing: Social Theory
and Technology.* Ed. Ann Hill Duin and Craig J. Hansen. Mahwah, NJ: Erlbaum, 1996. 157-
172.

**APPENDICES**

**APPENDIX A. CORRESPONDENCE WITH PARTICIPANTS**

**DEPARTMENT OF THE AIR FORCE**
AIR UNIVERSITY (AETC)

6 Aug 96

Capt Keith B. Riggle
Air Force Institute of Technology OL HP02
21 West 1325 South
Logan, UT 84321-8240

«Title» «FirstName» «LastName»
«Unit»/«OfficeSymbol»
«Address1»
«Address2»

Dear «Title» «LastName»

You are one of 90 people, both civilian and military, who have been randomly selected to participate in a study of writing on the job in the Air Force. This study is part of my master's degree program at Utah State University. The Air Force Institute of Technology is sponsoring me to obtain a master's degree in English. The purpose of the study is to find out how people in the Air Force actually write. Information from the study will be forwarded to Air University for possible use in modifying the way the Air Force teaches writing. This is an Air Force approved study; the survey control number is USAF SCN 96-44.

Although your participation is completely voluntary, it would be greatly appreciated. If you agree to participate, there will be four parts to the study:

a. Completing a survey instrument (enclosed).

b. Collecting samples of your writing. I will need to collect 5-10 samples of unclassified, nonsensitive writing you have composed during the past 6 months and which are stored in an electronic medium, e.g., on a floppy disk, hard disk, or local area network server. The samples should be representative of the writing you typically do. Examples of appropriate samples include memoranda, letters, reports, staff summary sheets, e-mail messages, and SARAH Lite messages. Examples of inappropriate samples include performance reports, inspection reports, and letters of reprimand. If you agree to participate in the study, I will provide you a floppy disk onto which to copy the writing samples.

c. Completing a questionnaire about one of the writing samples you provide.

d. Completing a short (30 minutes) interview about one of your writing samples.

Although this might sound involved, I have found that previous participants have taken only about 1 hour to complete all parts of the study. In addition, you can do all parts, including the interview, at your convenience.

If you'd be willing to participate in this study, please indicate this on the attached Informed Consent Form, which provides additional information about the study, such as confidentiality and how

information from the study will be used. Then complete the attached Survey Instrument and return both it and the Informed Consent Form to me in the enclosed self-addressed, stamped envelope by 14 Aug 96. I will then send you a disk for your writing samples.

If you decline to participate in the study, please indicate this on the Informed Consent Form and your reason for declining. I need to know the reasons people decline to ensure my study population isn't being skewed by some factor(s). Then return both the form and the blank Survey Instrument (I can reuse it) to me in the enclosed envelope.

If you have any questions about this study, please feel free to call me at 801-753-2624 or send me an e-mail to SLNBD@cc.usu.edu. Thank you for your time.

Sincerely

KEITH B. RIGGLE, Capt, USAF
AFIT Student

Attachments:
1. Informed Consent Form
2. Survey Instrument
3. Self-Addressed Stamped Envelope

# SURVEY OF ON-THE-JOB WRITING IN THE AIR FORCE

## USAF SCN 96-44

Please correct your name and address, if needed, and provide the requested information:

Name:
Unit/Office Symbol:
Street Address:
Base & ZIP+4:
Duty Phone:
E-mail Address:

1.  What is your Air Force duty title? _____

2.  How many years have you been in this position (round to closest half year)? _____

3.  What is your Air Force rank (grade for civilians)? _____

4.  How long have you held this rank or grade (round to the closest half year)? _____

5.  What is your Air Force Specialty Code (AFSC) (equivalent AFSC if civilian)? _____

6.  How many years have you held the above AFSC (round to nearest half year)? _____

7.  What is your time in service in the Air Force (round to nearest half year)? _____

8.  (For officers:)  Do you have any prior enlisted service?  Yes _____      No _____

9.  (For civilians:)  Do you have any prior military service?  Yes _____      No _____

10. What is your highest level of education?

    _____ High school diploma

    _____ Associate Degree

    _____ Bachelor's Degree

    _____ Master's Degree

    _____ Doctorate Degree

    _____ Other, please specify _____

11. If you hold advanced degrees (beyond high school), what did you major in, e. g., engineering, accounting, chemistry, journalism, etc.?

    _____

12. What formal writing classes, either civilian or military, have you taken, e.g., freshman comp?

    _____

13. What is the highest level of Professional Military Education you have completed? _____

For items 14 through 31, rate your responses on a scale of 1 to 5; place an X in the column corresponding to your rating.

|  | Strongly Disagree 1 | Disagree 2 | Undecided 3 | Agree 4 | Strongly Agree 5 |
|---|---|---|---|---|---|
| 14. I am comfortable with my ability to do my job. | ___ | ___ | ___ | ___ | ___ |
| 15. I feel anxious about being able to perform my job. | ___ | ___ | ___ | ___ | ___ |
| 16. I am comfortable with my writing ability | ___ | ___ | ___ | ___ | ___ |
| 17. I feel anxious about writing. | ___ | ___ | ___ | ___ | ___ |
| 18. The usual stress level in my organization is bearable. | ___ | ___ | ___ | ___ | ___ |
| 19. I am confident that I will be able to stay in the Air Force until retirement, should I so desire. | ___ | ___ | ___ | ___ | ___ |
| 20. I am confident that I will be promoted to the next rank. | ___ | ___ | ___ | ___ | ___ |
| 21. I frequently use *The Tongue and Quill*. | ___ | ___ | ___ | ___ | ___ |
| 22. I consciously try to use topic sentences in my writing. | ___ | ___ | ___ | ___ | ___ |
| 23. Every paragraph should begin with a topic sentence. | ___ | ___ | ___ | ___ | ___ |
| 24. I usually write the topic sentence of a paragraph first and then the rest of the paragraph. | ___ | ___ | ___ | ___ | ___ |
| 25. I usually check to make sure each paragraph has a topic sentence after I'm done drafting the whole piece. | ___ | ___ | ___ | ___ | ___ |
| 26. I try to avoid passive verbs in my writing. | ___ | ___ | ___ | ___ | ___ |
| 27. Writers should try to avoid passive verbs. | ___ | ___ | ___ | ___ | ___ |

|  | Strongly Disagree 1 | Disagree 2 | Undecided 3 | Agree 4 | Strongly Agree 5 |
|---|---|---|---|---|---|
| 28. I usually use the grammar checker to find passive verbs in my writing. | ___ | ___ | ___ | ___ | ___ |
| 29. I try to avoid "smothered" verbs in my writing. | ___ | ___ | ___ | ___ | ___ |
| 30. I try to use active verbs as much as possible in my writing. | ___ | ___ | ___ | ___ | ___ |
| 31. Past or present supervisors have influenced the way I write. | ___ | ___ | ___ | ___ | ___ |

32. List below up to five qualities that you think should be found in good writing. Then number the qualities from 1 to 5, with 1 the most important and 5 the least important.

___ _____

___ _____

___ _____

___ _____

___ _____

33. List below up to five qualities your supervisor looks for in your writing.

_____

_____

_____

_____

_____

34. List below up to five aspects about poor writing that bother you the most. Then number the aspects from 1 to 5, with 1 the most bothersome and 5 the least bothersome.

_____  _____

_____  _____

_____  _____

_____  _____

_____  _____


Please specify the size floppy disk you prefer to receive for your writing samples:

  ☐  3½ inch
  ☐  5¼ inch

Please return your completed survey in the enclosed self-addressed, stamped envelope to:

  Capt Keith Riggle
  21 West 1325 South
  Logan, UT  84321-8240

Thank you for participating in this study.

QUESTIONNAIRE FOR WRITERS

1.  What is your position in the Air Force? _____

2.  How many years have you been in this position (round to closest half year)? _____

3.  What is your Air Force rank (grade for civilians)? _____

4.  How long have you held this rank or grade (round to the closest half year)? _____

5.  What is your Air Force Specialty Code (AFSC) (equivalent AFSC if civilian)? _____

6.  How many years have you held the above AFSC (round to nearest half year)? _____

7.  What is your time in service in the Air Force (round to nearest half year)? _____

8.  (For officers:)  Do you have any prior enlisted service?  Yes _____     No _____

9.  What is the highest level of Professional Military Education you have completed, either in residence, by

    correspondence, or both? _____

10. What is your highest level of education?

    _____ High school diploma

    _____ Associate Degree

    _____ Bachelor's Degree

    _____ Master's Degree

    _____ Doctorate Degree

    _____ Other, please specify _____

11. If you hold advanced degrees (beyond high school), what are they in (include major subjects only, not
    minors)?

    _____

For items 12 through 19, rate your responses on a scale of 1 to 5; place an X in the column corresponding to your rating.

| | Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree |
|---|---|---|---|---|---|
| | 1 2 | 3 | 4 | 5 | |

12. I am comfortable with my ability to do my job    —— — — —

13. I feel anxiety about being able to perform my job    —— — — —

14. I am comfortable with my writing ability    —— — — —

15. I feel anxiety about writing    —— — — —

16. The usual stress level in my organization is bearable    —— — — —

17. I am confident that I will be able to stay in the Air Force until retirement, should I so desire    —— — — —

18. I am confident that I will be promoted to the next rank    —— — — —

19. I frequently use *The Tongue and Quill*    —— — — —

**UtahState**
**UNIVERSITY**

DEPARTMENT OF ENGLISH
Logan, Utah 84322-3200
Telephone: (801) 797-2733
FAX: (801) 797-4099

## INFORMED CONSENT FORM

**1. Introduction.** The subject of this study is "Demographic and Work Environment Factors Related to Writing Conventions in the U.S. Air Force." The purpose of this study is to find out how people in the Air Force actually write. You are one of 90 people here at Hill AFB selected at random to participate in this study.

**2. Procedures.** If you decide to participate, I will need to collect 5-10 representative samples of unclassified, nonsensitive writing you have composed during the past 6 months and which are stored in an electronic medium. Examples of appropriate samples include memoranda, letters, reports, staff summary sheets, e-mail messages, and SARAH Lite messages. Examples of inappropriate samples include performance reports, inspection reports, and letters of reprimand. After we collect the writing samples, I will need you to complete a questionnaire and an interview about one of the writing samples. I will tape record and transcribe the interview. After transcribing the interview, I will erase the tape. All parts of the study should take no more than 1 hour of your time. There are no foreseeable risks from your participation, because this is simply a descriptive study and not an experimental study.

**3. How the Information Will Be Used.** Most of the data I gather from you will be compiled with the data from the other participants to determine averages, frequencies, etc. I may also quote excerpts from either your writing samples or the interview. If I do quote you, I will refer to you by code, not your real name. In addition to including the results of this study in my master's thesis, I may wish to use some of it in journal articles or presentations to professional associations. I will also forward the results to the Air University. Since the data collected will be unclassified, I will retain the writing samples, questionnaires, and interview transcripts indefinitely.

**4. Confidentiality.** Your participation is completely voluntary, and you will be free to stop at any time without consequence. All information will be kept secured in a locked file cabinet and locked room and in strict confidence. Only my faculty advisor and I will have access to the data. Your identity will not be revealed in my thesis or in any subsequent papers I might publish.

**5. Questions.** If you have any questions either during or after the study, please feel free to contact me, Capt Keith Riggle, at 801-753-2624, or my faculty advisor, Dr. Keith Grant-Davie, at 801-797-3547.

**6.** Please mark the box indicating whether you agree or decline to participate and sign below.

☐ I voluntarily consent to participate under the conditions stated above.

☐ I decline to participate for the primary reason indicated below:
☐ I don't have time.
☐ I don't write as part of my job.
☐ I haven't written anything in the past 6 months.
☐ I don't have any of my writing saved in an electronic medium.
☐ I don't have any unclassified or nonsensitive writing.
☐ Other (please specify):_____

_____        _____
Signature                                          Date

**DEPARTMENT OF THE AIR FORCE**
AIR UNIVERSITY (AETC)

23 Aug 96

Capt Keith B. Riggle
Air Force Institute of Technology OL HP02
21 West 1325 South
Logan, UT 84321-8240

«Title» «FirstName» «LastName»
«Unit»/«OfficeSymbol»
«Address1»
«Address2»

Dear «Title» «LastName»

A few weeks ago I sent you a letter requesting your participation in a study I'm conducting on writing on the job in the Air Force. I haven't heard from you yet, and part of the job of a good researcher is to follow up with people who haven't responded. You might think if you don't respond, I'll assume you don't wish to participate. However, I can't assume that, because you might not have received my first letter, you might have misplaced it, or you might have been TDY. In addition, although I'd rather have people participate, it's very important for me to know the reasons people decline to participate.

In case you didn't receive my first letter, here's a synopsis of the study: You are one of 90 people, both civilian and military, who have been selected at random to participate in a study of writing on the job in the Air Force. This study is part of my master's degree program at Utah State University. The Air Force Institute of Technology is sponsoring me to obtain a master's degree in English. The purpose of the study is to find out how people in the Air Force actually write. Information from the study will be forwarded to Air University for possible use in modifying the way the Air Force teaches writing. This is an Air Force approved study; the survey control number is USAF SCN 96-44.

Although your participation is completely voluntary, it would be greatly appreciated. If you agree to participate, there will be four parts to the study:

a. Completing a survey instrument (enclosed).

b. Collecting samples of your writing. I will need to collect 5-10 samples of unclassified, nonsensitive writing you have composed during the past 6 months which are stored in an electronic medium, e.g., on a floppy disk, hard disk, or local area network server. The samples should represent the writing you typically do. Examples of appropriate samples include memoranda, letters, reports, staff summary sheets, e-mail messages, and SARAH Lite messages. Examples of inappropriate samples include performance reports, inspection reports, and letters of reprimand. If you agree to participate in the study, I will provide you a floppy disk onto which to copy the writing samples.

c. Completing a questionnaire about one of the writing samples you provide.

d. Completing a short (30 minutes) interview about one of your writing samples.

c. Completing a questionnaire about one of the writing samples you provide.

d. Completing a short (30 minutes) interview about one of your writing samples.

Although this might sound involved, previous participants have taken only about 1 hour to complete all parts of the study. In addition, you can do all parts, including the interview, at your convenience.

If you'd be willing to participate in this study, please indicate this on the attached Informed Consent Form, which provides additional information about the study, such as confidentiality and how information from the study will be used. Then complete the attached Survey Instrument and return both it and the Informed Consent Form to me in the enclosed self-addressed, stamped envelope by 13 Aug 96. I will then send you a disk for your writing samples.

If you decline to participate in the study, please indicate this on the Informed Consent Form and your reason for declining. I need to know the reasons people decline to ensure my study population isn't being skewed by some factor(s). Then return both the form and the blank Survey Instrument (I can reuse it) to me in the enclosed envelope.

I realize you didn't ask to be contacted about this survey, but I would greatly appreciate your cooperation in letting me know whether you're willing to participate. I believe this study has the potential to benefit the Air Force in how it teaches writing. You'll also save me postage and supplies by not having to continually contact you.

If you have any questions, please call me at 801-753-2624 or e-mail me at SLNBD@cc.usu.edu. Thanks again.

Sincerely

KEITH B. RIGGLE, Capt, USAF
AFIT Student

Attachments:
1. Informed Consent Form
2. Survey Instrument
3. Self-Addressed, Stamped Envelope

**DEPARTMENT OF THE AIR FORCE**
AIR UNIVERSITY (AETC)

12 Sep 96

Capt Keith B. Riggle
Air Force Institute of Technology OL HP02
21 West 1325 South
Logan, UT 84321-8240

«Title» «FirstName» «LastName»
«Unit»/«OfficeSymbol»
«Address1»
«Address2»

Dear «Title» «LastName»

Each year the Air Force spends thousands of dollars on training to help people write better. But how effective or valid is this training? Do people use what they've learned at the NCO Academy, AFROTC, OTS, SOS, or the USAFA when they write on the job (such as not using too many acronyms)? Or do they continue to write the way they've always written, which is usually the way their bosses want them to write? I hope you'll agree these are important questions to answer if the Air Force is to use its training dollars wisely.

You have the opportunity to help answer these questions. For my master's degree program through the Air Force Institute of Technology at Utah State University, I'm studying the writing people actually do on the job in the Air Force. If you have written anything in the past 9 months as part of your job, I would be very grateful if you participated in my study. Not only would you help me by providing valuable information for my thesis, but I believe you would be helping the Air Force in the long run. I will forward the information I gather to Air University, hopefully to be used to make the curriculum more sensitive to the daily writing needs of people in the Air Force.

The enclosed Informed Consent Form provides the details about the study. Please complete this form and the Survey Instrument and return them in the self-addressed envelope. Even if you aren't participating, please complete and return the Informed Consent Form, since it provides me important information about why people decline to participate. If you were TDY or on leave when this letter arrived, you can still participate as long as I receive your materials by 27 Sep 96.

If you have any questions, please call me at 801-753-2624 or e-mail me at SLNBD@cc.usu.edu. Thank you.

Sincerely

KEITH B. RIGGLE, Capt, USAF
AFIT Student

Attachments:
1. Informed Consent Form
2. Survey Instrument
3. Self-Addressed Envelope

**DEPARTMENT OF THE AIR FORCE**
AIR UNIVERSITY (AETC)

December 18, 1996

Capt Keith B. Riggle
Air Force Institute of Technology OL HP02
21 West 1325 South
Logan, UT  84321-8240

«Title» «FirstName» «LastName»
«Unit»/«OfficeSymbol»
«Address1»
«Address2»

Dear «Title» «LastName»

     Thank you for agreeing to participate in my study of writing on the job in the Air Force.  Enclosed is a 3½-inch disk for your writing samples and a return mailer.  Following is a list of file formats my software can read or that I have access to; if at all possible, please save your files in one of these formats:

     Microsoft Word 6.0 or earlier
     WordPerfect 6.1 or earlier
     Text (ASCII)

     Feel free to select samples that represent your writing from the past 6 months.  A good number of samples would be five to ten.  When you return the disk, please enclose your duty phone number so I can contact you to set up an interview.

     If you have any questions, please call me at 801-753-2624 or e-mail me at SLNBD@cc.usu.edu. Thanks again.

             Sincerely

             KEITH B. RIGGLE, Capt, USAF
             AFIT Student

Attachment:
Diskette

**APPENDIX B.  WRITING SAMPLE ANALYSIS MATERIAL**

**Example of a Writing Sample**

MEMORANDUM FOR HQ AFMC/AQ

FROM: OO-ALC/LI

SUBJECT: Omnibus Support Services Response (your memo, dated 18 Mar 96, titled
"Comments on the Two Near-Term OO-ALC/LI RFPs")

1. Once again it was a pleasure meeting with the Centralized RFP Support Team (CRFPST). A lot of
good ideas were exchanged during our Omnibus brainstorming session. We offer the following responses
to the recommendations provided in the referenced letter:

    a. Recommendation 1 - lowering the guaranteed minimum: We are still researching what would
be an acceptable amount for this guaranteed minimum. We do not want to make the minimum too low that
we loose competition, but we also need be realistic given our budget constraints. The CRFPST has raised a
good point regarding the possibility of a continuing resolution and we are taking that into consideration.

    b. Recommendations 2 - award fee: As discussed in our draft SAMP, it would be impossible to
set aside any amount for an award fee for the Trainer Program solicitation since funding cannot be
guaranteed. Our brainstorming meeting concentrated discussion on award fee for the Mission Planning
Systems (MPS) program. The guidance provided by the CRFPST has been very helpful. We are working
on an award fee plan to incorporate into the MPS RFP.

    c. Recommendation 3 - evaluation criteria: The CRFPST reaffirmed the guidance we had been
working under. Our goal is to extract the evaluation discriminators based on the risk areas we have
identified.

2. We would like to thank the team for taking time to review and comment on our program and we will
continue to keep them informed of our progress.

**Example of a Scoring Worksheet**

SUBJECT: Omnibus Support Services Response (your memo, dated 18 Mar 96, titled "Comments on the Two Near-Term OO-ALC/LI RFPs")

¶1. TS t-unit _____

___A ___P- ___P+ ___I ___C ___N    Once again it was a pleasure meeting with the Centralized RFP Support Team (CRFPST).

___A ___P- ___P+ ___I ___C ___N    A lot of good ideas were exchanged during our Omnibus brainstorming session.

___A ___P- ___P+ ___I ___C ___N    We offer the following responses to the recommendations provided in the referenced letter:

¶2. TS t-unit _____

___A ___P- ___P+ ___I ___C ___N    a. Recommendation 1 - lowering the guaranteed minimum: We are still researching
___A ___P- ___P+ ___I ___C ___N    what would be an acceptable amount for this guaranteed minimum.

___A ___P- ___P+ ___I ___C ___N    We do not want
___A ___P- ___P+ ___I ___C ___N    to make the minimum too low
___A ___P- ___P+ ___I ___C ___N    that we loose competition,

___A ___P- ___P+ ___I ___C ___N    but we also need
___A ___P- ___P+ ___I ___C ___N    be realistic given our budget constraints.

___A ___P- ___P+ ___I ___C ___N    The CRFPST has raised a good point regarding the possibility of a continuing resolution

___A ___P- ___P+ ___I ___C ___N    and we are taking that into consideration.

¶3. TS t-unit _____

___A ___P- ___P+ ___I ___C ___N    b. Recommendations 2 - award fee: As discussed in our draft SAMP, it would be impossible
___A ___P- ___P+ ___I ___C ___N    to set aside any amount for an award fee for the Trainer Program solicitation
___A ___P- ___P+ ___I ___C ___N    since funding cannot be guaranteed.

___A ___P- ___P+ ___I ___C ___N    Our brainstorming meeting concentrated discussion on award fee for the Mission Planning Systems (MPS) program.

___A ___P- ___P+ ___I ___C ___N    The guidance provided by the CRFPST has been very helpful.

___A ___P- ___P+ ___I ___C ___N    We are working on an award fee plan
___A ___P- ___P+ ___I ___C ___N    to incorporate into the MPS RFP.

¶4. TS t-unit _____

___A ___P- ___P+ ___I ___C ___N     c. Recommendation 3 - evaluation criteria: The CRFPST reaffirmed the guidance

___A ___P- ___P+ ___I ___C ___N     we had been working under.

___A ___P- ___P+ ___I ___C ___N     Our goal is

___A ___P- ___P+ ___I ___C ___N     to extract the evaluation discriminators based on the risk areas

___A ___P- ___P+ ___I ___C ___N     we have identified.

¶5. TS t-unit _____

___A ___P- ___P+ ___I ___C ___N     2. We would like

___A ___P- ___P+ ___I ___C ___N     to thank the team for taking time

___A ___P- ___P+ ___I ___C ___N     to review and comment on our program

___A ___P- ___P+ ___I ___C ___N     and we will continue

___A ___P- ___P+ ___I ___C ___N     to keep them informed of our progress.

**Example of a Bullet Background Paper**

**Broken Into Paragraphs**

BULLET BACKGROUND PAPER

ON

THE DESTRUCTION OF 370 GALLON EXTERNAL FUEL TANKS

[¶1]

There has been a recent shortage of fuel quantity indicator probes for use in the F-16 370 gallon external fuel tanks. At approximately the same time that the shortage occurred, it was learned that certain USAFE Air Bases were destroying excess 370 gallon external fuel tanks without salvaging the fuel quantity probes, a recoverable item. Concerns were raised that this unnecessary waste was occurring when there was an urgent need.

[¶2]

Fuel Tank Destruction

- In July of 1994, OO-ALC/LIWC was notified by HQ AFMC/DRW that there were excess 370 gallon external fuel tanks in inventory.

  -- Due to the storage expenses related with the 370 gallon external fuel tanks, USAF policy requires that all tanks identified as excess be removed from inventory. The tanks are first offered for foreign military sales and are subsequently destroyed if not sold.

  -- OO-ALC/LIWC identified 2700 excess tanks in USAFE inventories in July 1994, and ordered them to be destroyed after no foreign sales were generated. At that time, there were no shortages of fuel quantity indicator probes, and salvage of these probes was not required.

- In the Dec 95- Jan 96 time-frame, a series of fuel quantity indicator probe failures occurred in the field. Inventory supplies were quickly depleted and MICAP situations arose.

- In late Feb 96, OO-ALC/LIWC was informed that some of the USAFE 370 gallon external fuel tanks, ordered for destruction in July 94, were still in the process of being destroyed at Aviano AB. In the hopes of salvaging some fuel probes, OO-ALC/LIWC followed up on this information to find that all the tanks at Aviano had already been destroyed.

  -- No notice was sent out to USAFE regarding the desired salvage of the fuel probe from tanks identified as excess because OO-ALC/LIWC assumed that they had all been destroyed already.

- In Mar 96, personnel in the fuel shop at Shaw AFB were visiting Ramstein AB, Germany and discovered some excess fuel tanks from the July 94 group that had not been destroyed. OO-ALC/LIWC granted them permission to salvage the fuel probes from these tanks.

[¶3]

Fuel Probe Quantity Indicator Status

- There are currently no MICAPs on the fuel quantity indicator probe and the supply shortage will soon be alleviated through buying actions.

  -- When the probe shortages occurred, 1500 each fuel quantity indicator probes (3 per tank) were salvaged from excess 370 gallon external fuel tanks stored at Hill AFB to re-supply the system.

  -- A contract delivery of 950 fuel quantity indicator probes began on 1 Apr 96.

[¶4]

There have been some recent fuel tank destructions within USAFE where the fuel indicator probes have not been salvaged. This is due to a slow destruction schedule and the fact that USAFE was not aware of the short-term USAF fuel probe shortage. Due to the current positive status of the fuel probe, no action has been taken to identify the few remaining excess USAFE 370 gallon fuel tanks for probe salvage actions.

## Instructions for Analyzing Writing Samples

- Use pencil. Initial all pages after "Analyst:". Keep pages in order.

### Verbs

- For each clause, circle the letter(s) corresponding to the type of finite or infinite verb. The letters stand for:

A      = active
P-     = passive without agent
P+    = passive with expressed agent
I       = intransitive
C      = imperative (command)
N      = nominalization

- If there is more than one type of verb in a clause, circle all letters that apply and write a fraction in the blank before each letter. E.g., if there are 3 verbs in a clause, 2 of which are active and 1 is intransitive, write "2/3" in front of "A" and "1/3" in front of "I."

- In general, you should be able to transform an active verb into passive and vice versa; if you can't, it's probably intransitive. Include pseudo passives such as "got shot" and "became damaged."

- Verbs followed by prepositions can be tricky. Often these prepositions are actually particles, and even when they aren't, the verb may still be transitive. Such is usually the case if the prepositional phrase answers the question of "who" or "what" instead of "where," "when," or "how." The latter three cases, of course, would be adverbial phrases, and if there were no other object, the verb would probably be intransitive.

- It can be difficult to determine if past participles are passives or adjectives. If they can be modified by "very," they are probably adjectives. For them to be passive, they must be able to take agents. DON'T COUNT as passive past participles that are clearly adjectives, such as when they immediately follow nouns and are not preceded by a form of "be."

- Some clauses are actually sentence fragments. Where possible, I've joined the fragment to an adjacent sentence. In other cases, I've supplied the missing word(s) in square brackets. Sometimes when the subject is missing but clearly understood, I've left the fragment as is.

- If you believed I overlooked a clause, put slashes (/) around it and use the letters at the beginning of the clause containing it to identify the type of verb. If this results in more than one type of verb, simply write the number in the blank.

### Nominalizations

- A nominalization, of course, is a verb that is turned into a noun. However, there are many kinds of nominals. I'm interested only in a specific kind.

- Identify only superfluous nominalizations matching one of the following patterns:

    -- Noun + Verb + Nominalization

    -- Nominalization + Verb + Complement

- Circle all nominalizations in a clause and write the number in the blank before "N".

- Examples:

| Verb | Nominalization |
|---|---|
| choose | make a choice |
| decide | make a decision |
| refuse | make a refusal |
| offer | make an offer |
| criticize | offer criticism |
| meet | hold a meeting |
| consider | give consideration to |
| approve | give approval |
| use | make use of |
| control | control has been or there was control |
| need | need exists |
| investigate | conduct an investigation |
| review | review was accomplished |
| discover | make a discovery |
| move | make a movement |
| resist | offer resistance |
| fail | failure was |
| request | make a request |
| report | make a report |
| expect | have an expectation |
| erode | there was erosion |
| intend | intention is |

- Get the idea? This list is far from inclusive. Identifying nominalizations is subjective and is, in fact, as much of a stylistic issue as a grammatical one. However, one clue is that you should be able to transform the nominalization back into a verb, producing a sentence that means the same as the original. You may need to add a subject and /or object to do so.

- Don't count a nominalization in the following cases:

    -- It's a subject referring to a previous sentence: "This decision can lead to costly consequences."

    -- It names what would be the object of its verb: "I don't understand her intention."

    -- It replaces an awkward or wordy construction: "My denial of his accusations impressed the

    jury."

-- It refers to an often repeated concept: "The Equal Rights Amendment was an issue in past elections."

## Topic Sentences

- Paragraphs are preceded by a ¶ sign and are numbered. The original numbering or lettering in some cases has been retained to show sub-paragraphs.

- Paragraphs have been broken down into clauses and T-units. A T-unit is a main clause along with its subordinate clauses. T-units are separated by a line break.

- If a paragraph contains a topic sentence, write the number of the T-unit containing it in the blank.

- If there is no topic sentence, write the null symbol ($\varnothing$) in the blank.

- Single T-unit paragraphs do not have topic sentences.

- Headings do not count as topic sentences.

- A topic sentence must be expressed in a single T-unit.

- A topic sentence should cover most points in a paragraph.

- All other T-units in a paragraph should relate to the topic sentence.

- If a paragraph contains sub-paragraphs, its topic sentence should encompass the sub-paragraphs. The main paragraph may contain only one T-unit and still be the topic sentence for the whole paragraph.

# Verb Analysis Flowchart

**Active versus Passive Voice**

**Active:**

In-house support gave the two workshop segments.

**Passive with agent:**

The two workshop segments were given by in-house support.

**Active:**

You can trust the government to pay for repair of the damaged vehicle.

**Passive without agent:**

The government can be trusted to pay for repair of the damaged vehicle.

**Nominalizations**

make a choice (choose)
make a decision (decide)
make a refusal (refuse)
make an offer (offer)

**Linking Verbs**

| | |
|---|---|
| be | remain |
| is | stay |
| am | cost |
| are | apply to |
| was | result in |
| were | consist of |
| become | seem |
| appear | serve as |

**The following are linking verbs if they have no objects:**

| | | |
|---|---|---|
| feel | look | increase |
| sound | grow | decrease |

Start

(1)

Highlight the complete verb (including auxilliaries)

What is the main verb?

Is it a linking verb? — Y →

(2)

The verb is intransitive

Can the subject or predicate noun be turned into a verb and the original verb eliminated? — N → It is not a nominal

N (from linking verb)

Is there a phrase answering the question, "Who or what <verb>?"

N → There is no subject

Y → It is a nominal

Y → This is the subject

It is a nominal → Stop

It is not a nominal → Stop

Is the subject understood you? — Y → Is the clause a command? — Y → The verb is imperative

N → (3)

N → (3)

The verb is imperative → (5)

③

**Is there a phrase answering the question,"Who or what does someone/thing <verb>?"**

— N → The verb is intransitive
→ ②

Y ↓

This is the direct object and the verb is transitive

↓

**If there is an aux verb, is it a form of BE?**

N → The verb is active

↓ (from The verb is active)

**Can the clause be turned into passive?**

N → ①

Y ↓ ⑤

Y (from BE?) ↓

**Is the main verb a past participle? (ending in -ed or -en)**

N →

Y ↓

**Is the clause in the order Object+ BE+Past Part+ Prep+Subj?**

N → ①

Y ↓

The verb is passive

↓

④

---

④

**Can the clause be turned into active?**

N → ①

Y ↓

**Is there a subject?**

N → The verb is agentless

Y ↓

The verb is agentful

↓

⑤

↓

**Can the direct object be turned into a verb and the original verb eliminated?**

N → It is not a nominal

Y ↓

It is a nominal

↓

Stop

**Example Writing Instrument**

[**Directions:** Some of the sentences from your original document have been rewritten to include two or three options. One of the options is from the original; the others are possible variations of the original. Mark the option that is most acceptable to you; the option you choose could be your original sentence. I will then ask you to explain why you chose each option.]

MEMORANDUM FOR HQ AFMC/AQ

FROM: OO-ALC/LI

SUBJECT: Omnibus Support Services Response (your memo, dated 18 Mar 96, titled "Comments on the Two Near-Term OO-ALC/LI RFPs")

1. Once again it was a pleasure meeting with the Centralized RFP Support Team (CRFPST).

[A.]   1. _____     The team exchanged a lot of good ideas during our Omnibus brainstorming session.

        2. _____     A lot of good ideas were exchanged by the team during our Omnibus brainstorming session.

        3. _____     A lot of good ideas were exchanged during our Omnibus brainstorming session.

[B.]   1. _____     We respond to the recommendations provided in the referenced letter as follows:

        2. _____     We offer the following responses to the recommendations provided in the referenced letter:

        3. _____     The recommendations provided in the referenced letter are responded to as follows:

    a. Recommendation 1 - lowering the guaranteed minimum: We are still researching what would be an acceptable amount for this guaranteed minimum. We do not want to make the minimum too low that we loose competition, but we also need be realistic given our budget constraints.

[C.]   1. _____     A good point regarding the possibility of a continuing resolution has been raised

        2. _____     The CRFPST has raised a good point regarding the possibility of a continuing resolution

        3. _____     A good point regarding the possibility of a continuing resolution has been raised by the CRFPST

[D.]  1. _____        and we are considering that.

2. _____        and we are taking that into consideration.

3. _____        and that is being taken into consideration.

         b.  Recommendations 2 - award fee:  As discussed in our draft SAMP, it would be impossible to set aside any amount for an award fee for the Trainer Program solicitation

[E.]  1. _____        since we cannot guarantee funding.

2. _____        since funding cannot be guaranteed.

[F.]  1. _____        Discussion was concentrated on award fee for the Mission Planning Systems (MPS) program.

2. _____        Our brainstorming meeting concentrated discussion on award fee for the
Mission          Planning Systems (MPS) program.

3. _____        Discussion was concentrated on award fee for the Mission Planning Systems (MPS) program by our brainstorming meeting.

The guidance provided by the CRFPST has been very helpful.  We are working on an award fee plan to incorporate into the MPS RFP.

         c.  Recommendation 3 - evaluation criteria:  The CRFPST reaffirmed the guidance we had been working under.  Our goal is to extract the evaluation discriminators based on the risk areas we have identified.

2.  We would like to thank the team for taking time to review and comment on our program and we will continue to keep them informed of our progress.

[**Directions:** Decide if each paragraph below has a topic sentence. If you think a paragraph has a topic sentence, underline that sentence. If you think a paragraph does not have a topic sentence, check the box labeled "No Topic Sentence" beneath that paragraph.]

MEMORANDUM FOR HQ AFMC/AQ

FROM: OO-ALC/LI

SUBJECT: Omnibus Support Services Response (your memo, dated 18 Mar 96, titled "Comments on the Two Near-Term OO-ALC/LI RFPs")

1. Once again it was a pleasure meeting with the Centralized RFP Support Team (CRFPST). A lot of good ideas were exchanged during our Omnibus brainstorming session. We offer the following responses to the recommendations provided in the referenced letter:

☐ No Topic Sentence

     a. Recommendation 1 - lowering the guaranteed minimum: We are still researching what would be an acceptable amount for this guaranteed minimum. We do not want to make the minimum too low that we loose competition, but we also need be realistic given our budget constraints. The CRFPST has raised a good point regarding the possibility of a continuing resolution and we are taking that into consideration.

☐ No Topic Sentence

     b. Recommendations 2 - award fee: As discussed in our draft SAMP, it would be impossible to set aside any amount for an award fee for the Trainer Program solicitation since funding cannot be guaranteed. Our brainstorming meeting concentrated discussion on award fee for the Mission Planning Systems (MPS) program. The guidance provided by the CRFPST has been very helpful. We are working on an award fee plan to incorporate into the MPS RFP.

☐ No Topic Sentence

     c. Recommendation 3 - evaluation criteria: The CRFPST reaffirmed the guidance we had been working under. Our goal is to extract the evaluation discriminators based on the risk areas we have identified.

☐ No Topic Sentence

2. We would like to thank the team for taking time to review and comment on our program and we will continue to keep them informed of our progress.

☐ No Topic Sentence

**APPENDIX C. INTERVIEW MATERIAL**

**Interview Questions for Writers (Main Study)**

1. You said you do/do not consciously try to use topic sentences. Why is that?

2. You agree/disagree that every paragraph should begin with a topic sentence. Why is that?

3. You said you do/do not try to use active verbs. Why is that?

4. You said you do/do not try to avoid passive verbs. Why is that?

5. You said you do/do not try to avoid smothered verbs. Why is that?

**Interview Questions for Writers (Pilot Study)**

1. How do you go about writing a paragraph?

2. You said you do/do not consciously use topic sentences. Why or why not?

3. What qualities do you expect in good writing? How would you rank order them?

4. What qualities do your bosses look for in your writing?

5. What aspects about poor writing bother you the most? How would you rank order them?

6. When you revise a piece of writing, what things do you look for?

7. You said you do/do not try to avoid the passive voice. Why or why not?

8. What kinds of things in your writing do your bosses have you rewrite?

9. What is the name of your immediate supervisor?

**Interview Questions for Supervisors of Writers (Pilot Study)**

1. Please rate (name of subject) on a scale of 1 to 3, with 1 being a poor writer, 2 being an average writer, and 3 being one of your best writers.

2. (If the subject was rated a 3): Why do you consider (name of subject) to be one of your best writers?

## Initial Interview Coding Scheme

- Interview responses are either numbered or lettered and refer to a writing instrument you don't have. Write all codes that apply to a response in the order of appearance. Use the following coding taxonomy:

**Code**    **Definition**

**I**    **Cultural conventions:** refers to guidelines in handbooks and textbooks as to what constitutes good writing in U.S. culture at large. Use this code if a respondent says something like, "Because it's active/passive," unless s/he specifically refer to Air Force guidelines (see code II).

**II**    **Institutional conventions:** refers to written or unwritten guidelines of the Air Force.

**III**    **Generic conventions:** refers to constraints imposed by the genre, or type, of writing (e.g., letter, e-mail, etc.).

**IV**    **Personal conventions:** refers to the writers personal linguistic or rhetorical preferences. In addition, use the following sub-codes if they apply:

**IVA**    "It sounds better" or "It doesn't sound right/as good."

**IVB**    "It flows better/more smoothly" or "It doesn't flow as well."

**V**    **Situational conventions:** refers to the parameters of the rhetorical situation, including audience, purpose, or subject. In addition, use the following sub-codes if they apply:

**VA**    Refers to the agent of the verb either needing or not needing to be included.

**VB**    Refers to the placement or emphasis of the subject in the sentence.

**VI**    "No reason," "I don't know," or "I'm not sure."

## Final Interview Coding Scheme

### 1. Cultural Conventions:

Refers to guidelines in handbooks and textbooks as to what constitutes good writing in U.S. culture at large.

*A. Efficiency: gets the point across in the fewest words*

Typical statements:

"Short and to the point" (P1)
"Less beating around the bush" (P1)
"More/less direct" (P1)

"Snaking around what we're trying to say" (P1)
"Just plain and simple" (P2)
"Straight and to the point" (P2)
"Just keep it simple" (P2)
"Straightforward and to the point" (P2)
"A lot of these prepositional phrases in here don't really need to be there" (P3)
"This got the point across in the least amount" (P3)
"It's shorter" (P3)
"Words you don't need" (P5)

## B. Redundancy

Typical statements:

"Seems repetitive" (P2)
"I don't think you need to be redundant"
"'USU and You' was redundant"

## C. Voice: active/passive

Typical statements:

"Subject, action, then object" (P1)

## D. Definition of topic sentence: summarizes the whole paragraph; states the main point/problem up front

Typical statements:

"Summarizes the purpose of the letter; it's a good topic sentence" (P1)
"It talks about what the paragraph is about" (P1)
"I'm aware that you state the problem up front" (P6)
"Should have been stated up front rather than at the end" (P6)
"It doesn't really state the problem" (P6)

## E. It's what's expected/prohibited

Typical statements:

"In my early training, contractions are OK for informal writing, but not for formal writing. . . . just because it was so forbidden at the time, so I typically don't" (P6)

## F. It's what I was trained to do

Typical statements:

"In my early training . . ." [see above] (P6)

## G. Consistency

Typical statements:

"Keep it in the same voice as it was here" (C4)

## 2. Institutional Conventions:

Refers to written or unwritten guidelines of the Air Force.

*A. What's expected by the Air Force, a subordinate organization, or supervisor*

Typical statements:

"That's what's dictated by the Air Force, to avoid passive sentences" (P1)

*B. A standard statement included in most documents*

Typical statements:

"Last paragraph's fairly standard" (P3)
"A lot of times you have to put in, 'If you have any questions, please call this number'" (P4)
"That's just the way I've always seen it" (P5)
"I think it's a standard statement in most of the letters, requests, that I have seen in the past" (P5)

## 3. Generic Conventions:

Refers to constraints imposed by the genre, or type, of writing (e.g., letter, e-mail, etc.).

*A. A standard part of a certain type of document*

Typical statements:

"I did not think in terms of topic sentences when I wrote the letter. The e-mail was—I considered a short, concise thing identifying a problem. Yes, I'm aware that you state the problem up front. I typically do try to do that so that the person receiving it would understand what was going on. Definitely, in the case of the e-mail, it would have been better had I been more exact in what I was trying to tell him. . . . An e-mail? [laughs] I just didn't do it." (P6)

*B. Heading*

Typical statements:

"This heading here kind of takes the place of a topic sentence" (C4)

## 4. Personal Conventions:

Refers to the writers personal linguistic or rhetorical preferences.

*A. The way it sounds*

Typical statements:

"It sounded like it matched better with this one" (P2)
"That just doesn't sound right" (P2)
"I like the way it sounds better" (P5)
"I think that sounds funny" (P5)

*B. The way it flows*

Typical statements:

"It just flows smoother" (P2)
"Just flows with the first one" (P2)

*C. Personal preference*

Typical statements:

"It's just not the way I would do it" (P1)
"That was kind of shaky" (P1)
"I just like it" (P1)
"I like the active voice" (P1)
"Which one I would use would probably just depend on my mood" (P1)
"I just prefer this one" (P2)
"I think it's proactive" (P6)

## 5. Situational Conventions:

Refers to the parameters of the rhetorical situation, including audience, purpose, or subject.

*A. Agency (include/exclude the doer)*

Typical statements:

"Well, by who?" [sic] (P1)
"That would leave out who was doing the recommending" (P1)
"It doesn't specify as far as by who" [sic] (P1)
"Not so much blaming it on one person or the other" (P2)
"It tells you who" (P2)
"By whom, Joe Blow down the street?" (P2)
"Who else would I be writing for?" (P3)
"I could care less who delivered it" (P4)
"To try and keep from pointing fingers" (P4)
"What I'm trying to do is really put the onus on headquarters for making the change in requirement" (P5)
"I wanted the fact that it's your fault, you guys did this, we didn't do it, put that up front" (P5)
"That really is blaming them" (P5)
"I didn't feel that it was necessary to explain that it was 'by me'" (P6)

*B. Emphasis*

Typical statements:

"Throw in that 'serious' thing to make it sound important" (P2)
"I don't like putting them up front" (P3)
"It gets kind of buried" (P3)
"The third one really says right up front what the problem was" (P5)
"It puts it up in the first part of the sentence where they'll pay more attention to it than at the last" (P5)

C. *Audience awareness: what the reader already knows or needs to know*

Typical statements:

"They're kind of understood" (P3)
"Just additional information they needed to know" (P5)
"They already know that, but the information that they don't know was that . . ." (P5)
"Just wanted to let them know" (P5)
"It should be obvious to the reader" (P5)
"I took that to be understood" (P6)

D. *Comprehensibility, simplicity, or clarity*

Typical statements:

"It's easily understood" (P2)
"It's simpler" (P6)
"It just conveys better" (P6)

E. *Level of formality*

Typical statements:

"It's more personal" (P3)
"I'll try to use this to personalize it" (P3)
"It seems less professional" (P4)
"Just to get myself out of the letter" (P4)
"Just trying to take the personality out of it" (P4)
"Just trying to depersonalize it" (P4)
"Contractions are O.K. for informal writing but not for formal writing" (P6)

F. *The author's purpose or meaning*

Typical statements:

"I wanted to let them know . . ." (P2)
"I wanted also to convey to them . . ." (P2)

G. *The topic of the document/paragraph/sentence*

Typical statements:

"Just to give them a reference for where I'm going for the rest of the sentence" (P4)
"It lets the reader know that the topic of that paragraph is going to be about . . ." (P5)

H. *Tact*

"I was originally going to pass on the information to Dr. _____, so, since I was going to do it, the second before I told him, going through the dean first, to make sure I don't ruffle feathers within the institution." (P6)

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### 6. Don't think about it

Typical statements:

"I did not think in terms of topic sentences when I wrote the letter" (P6)

### 7. No Reason

Typical statements:

"No real good reason for that one" (P5)

**APPENDIX D. DATA**

Table 29. Participants' Responses to Survey Items

| Subject | Survey Item | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | Total |
| C01 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 2 | 3 | 3 | 2 | 68 |
| C02 | 5 | 1 | 4 | 2 | 5 | 5 | 2 | 4 | 2 | 4 | 4 | 4 | 3 | 2 | 4 | 4 | 4 | 1 | 60 |
| C03 | 5 | 5 | 4 | 4 | 5 | 5 | 2 | 2 | 2 | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 4 | 5 | 65 |
| C04 | 4 | 4 | 5 | 4 | 4 | 5 | 1 | 3 | 4 | 4 | 4 | 2 | 4 | 4 | 1 | 4 | 4 | 4 | 65 |
| C05 | 4 | 2 | 4 | 3 | 4 | 5 | 2 | 3 | 4 | 4 | 2 | 2 | 3 | 3 | 4 | 3 | 3 | 5 | 60 |
| C06 | 5 | 4 | 4 | 5 | 4 | 5 | 3 | 4 | 4 | 4 | 4 | 3 | 3 | 4 | 4 | 3 | 4 | 3 | 70 |
| C07 | 5 | 5 | 4 | 5 | 5 | 4 | 4 | 2 | 2 | 3 | 2 | 2 | 4 | 4 | 2 | 3 | 4 | 2 | 61 |
| C08 | 5 | 5 | 5 | 5 | 5 | 5 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 2 | 4 | 4 | 4 | 74 |
| C09 | 4 | 4 | 4 | 4 | 2 | 4 | 2 | 1 | 3 | 4 | 4 | 2 | 4 | 4 | 1 | 3 | 4 | 1 | 55 |
| C10 | 4 | 4 | 5 | 5 | 4 | 4 | 2 | 1 | 3 | 4 | 3 | 2 | 4 | 4 | 2 | 4 | 4 | 1 | 60 |
| C11 | 5 | 4 | 3 | 2 | 2 | 5 | 3 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 3 | 3 | 3 | 64 |
| C12 | 5 | 4 | 4 | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 49 |
| C13 | 4 | 4 | 2 | 2 | 4 | 5 | 1 | 1 | 2 | 2 | 4 | 4 | 4 | 3 | 2 | 4 | 4 | 4 | 56 |
| C14 | 4 | 4 | 3 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | 2 | 45 |

**Table 29.  continued**

|  | Survey Item | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | Total |
| C15 | 5 | 4 | 4 | 4 | 2 | 5 | 1 | 1 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 64 |
| C16 | 5 | 4 | 5 | 5 | 4 | 4 | 2 | 1 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | 1 | 54 |
| M01 | 5 | 5 | 5 | 5 | 5 | 2 | 4 | 4 | 2 | 4 | 4 | 2 | 4 | 3 | 4 | 4 | 4 | 2 | 68 |
| M02 | 5 | 4 | 4 | 5 | 4 | 4 | 5 | 2 | 2 | 4 | 2 | 2 | 1 | 2 | 2 | 3 | 4 | 4 | 59 |
| M03 | 5 | 5 | 5 | 5 | 4 | 5 | 5 | 1 | 1 | 1 | 2 | 1 | 4 | 4 | 1 | 3 | 4 | 2 | 58 |
| M04 | 5 | 4 | 5 | 5 | 4 | 5 | 5 | 4 | 3 | 4 | 5 | 3 | 4 | 4 | 1 | 4 | 5 | 2 | 72 |
| M05 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 5 | 2 | 3 | 2 | 4 | 2 | 2 | 3 | 4 | 4 | 61 |
| M06 | 4 | 4 | 4 | 4 | 4 | 1 | 2 | 2 | 2 | 4 | 2 | 2 | 2 | 4 | 2 | 3 | 2 | 2 | 50 |
| M07 | 4 | 5 | 5 | 5 | 1 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 4 | 2 | 3 | 3 | 3 | 55 |
| M08 | 4 | 4 | 4 | 4 | 4 | 2 | 3 | 4 | 5 | 4 | 5 | 2 | 4 | 5 | 3 | 3 | 4 | 4 | 68 |
| M09 | 4 | 4 | 4 | 4 | 5 | 3 | 5 | 2 | 4 | 4 | 4 | 4 | 5 | 4 | 2 | 3 | 4 | 2 | 67 |
| M10 | 4 | 4 | 5 | 5 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 2 | 4 | 3 | 2 | 4 | 4 | 5 | 69 |
| M11 | 4 | 4 | 4 | 2 | 4 | 2 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 64 |
| M12 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 2 | 3 | 4 | 4 | 4 | 4 | 5 | 4 | 3 | 5 | 4 | 71 |

**Table 29. continued**

| Subject | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Survey Item | | | | | | | | | |
| P2 | 5 | 2 | 4 | 2 | 4 | 4 | 4 | 3 | 3 | 4 | 3 | 3 | 3 | 4 | 3 | 3 | 4 | 2 | 60 |
| P6 | 5 | 2 | 4 | 4 | 4 | 5 | 2 | 5 | 3 | 4 | 2 | 2 | 4 | 4 | 2 | 2 | 4 | 5 | 63 |
| $\sigma_i^2$ | .25 | .91 | .47 | 1.27 | .99 | 1.45 | 1.99 | 1.53 | 1.06 | .79 | .92 | .87 | .80 | .72 | 1.16 | .41 | .49 | 1.75 | 49.80 |

Note:  The following formula was used to calculate the KR20 reliability statistic from Table 29:

$$KR20 = \left(\frac{k}{k-1}\right)\left(1 - \frac{\Sigma \sigma_i^2}{\sigma_t^2}\right) = \left(\frac{18}{18-1}\right)\left(1 - \frac{17.03}{49.80}\right) = 0.6967$$

where:

$k$  = number of items

$\sigma_i^2$ = population variance of an item

$\sigma_t^2$ = population variance of total scores

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## Table 29.  continued

This formula is used to measure the internal consistency of items on a survey or test by providing "an estimate of the average split-half reliability for all possible splits in a test without requiring actually splitting the test" (Mason and Bramble 267).

**Table 30.  Participants' Job Positions**

| Position | Count | Percentage |
|----------|-------|------------|
| Worker | 15 | 53.6% |
| Supervisor | 13 | 46.4% |
| Total | 28 | 100.0% |
| | | |
| Mode | Worker | |
| Mean Time in Position | 6.5 years | |

**Table 31. Participants' Grades**

| Grade | Count | Percentage |
|---|---|---|
| Civilians | | |
| GS-11 | 3 | 18.8% |
| GS-12 | 10 | 62.5% |
| GS-13 | 2 | 12.5% |
| GS-14 | 1 | 6.3% |
| Total | 16 | 100.0% |
| | | |
| Median | GS-12 | |
| Mode | GS-12 | |
| Mean Time in Grade | 9.9 years | |
| | | |
| Military | | |
| O-1 | 4 | 33.3% |
| O-2 | 2 | 16.7% |
| O-3 | 3 | 25.0% |
| O-4 | 3 | 25.0% |
| Total | 12 | 100.0% |
| | | |
| Median | O-2.5 | |
| Mode | O-1 | |
| Mean Time in Grade | 2.0 years | |

**Participants' Table 32. Participants' Job Specialties**

| Specialty | Frequency | Percentage |
|---|---|---|
| Operations | 2 | 7.1% |
| Logistics | 3 | 10.7% |
| Civil Engineer | 6 | 21.4% |
| Software Engineer | 4 | 14.3% |
| Support | 4 | 14.3% |
| Nurse | 3 | 10.7% |
| Acquisition | 1 | 3.6% |
| Scientist | 2 | 7.1% |
| Aerospace Engineer | 3 | 10.7% |
| Total | 28 | 100.0% |
| | | |
| Mean Time in Specialty | 9.6 years | |

**Table 33. Participants' Seniority and Prior Military Service**

| Years' Service | Count | Percentage |
|---|---|---|
| 0 to 4.5 | 7 | 25.0% |
| 5 to 10.5 | 8 | 28.6% |
| 11 to 25 | 6 | 21.4% |
| 25.5 to 35 | 7 | 25.0% |
| Total | 28 | 100.0% |
| | | |
| Officers with Prior Enlisted Service | 0 | 0.0% |
| | | |
| Civilians with Prior Military Service | 8 | 50% |

**Table 34. Participants' Highest Level of Education**

| Level | Count | Percentage |
|---|---|---|
| <Bachelor's | 4 | 14.3% |
| Bachelor's | 19 | 67.9% |
| >Bachelor's | 5 | 17.9% |
| Total | 28 | 100.0% |

**Table 35. Participants' Academic Majors**

| Major | Count | Percentage |
|---|---|---|
| None | 2 | 7.1% |
| Business/Management | 5 | 17.9% |
| Science/Technical | 17 | 60.7% |
| Liberal Arts | 4 | 14.3% |
| Total | 28 | 100.0% |

**Table 36. College Writing Courses**

**Participants Have Taken**

| Course | Count | Percentage |
|---|---|---|
| None | 3 | 10.7% |
| One or More | 25 | 89.3% |
| Total | 28 | 100.0% |

**Table 37. Participants' Highest Level**

**of Professional Military Education**

| Level | Count | Percentage |
|---|---|---|
| None | 21 | 75.0% |
| SOS | 5 | 17.9% |
| ACSC | 2 | 7.1% |
| Total | 28 | 100.0% |

**Table 38. Participants' Responses to Likert Scale Survey Items**

| Count<br>Percentage | Strongly<br>Disagree | Disagree | Undecided | Agree | Strongly<br>Agree |
|---|---|---|---|---|---|
| Rating | 1 | 2 | 3 | 4 | 5 |
| 14. I am comfortable with my ability to do my job. | 0 | 0 | 0 | 14 | 14 |
| | 0% | 0% | 0% | 50.0% | 50.0% |
| 15. I feel anxious about being able to perform my job. | 7 | 19 | 0 | 1 | 1 |
| | 25.0% | 67.9% | 0% | 3.6% | 3.6% |
| 16. I am comfortable with my writing ability. | 0 | 1 | 2 | 16 | 9 |
| | 0% | 3.6% | 7.1% | 57.1% | 32.1% |
| 17. I feel anxious about writing. | 12 | 10 | 1 | 5 | 0 |
| | 42.9% | 35.7% | 3.6% | 17.9% | 0% |
| 18. The usual stress level in my organization is bearable. | 1 | 4 | 0 | 17 | 6 |
| | 3.6% | 14.3% | 0% | 60.7% | 21.4% |
| 19. I am confident that I will be able to stay in the Air Force until retirement, should I so desire. | 2 | 3 | 3 | 8 | 12 |
| | 7.1% | 10.7% | 10.7% | 28.6% | 42.9% |
| 20. I am confident that I will be promoted to the next rank. | 4 | 10 | 3 | 5 | 6 |
| | 14.3% | 35.7% | 10.7% | 17.9% | 21.4% |
| 21. I frequently use The Tongue and Quill. | 6 | 10 | 3 | 9 | 0 |
| | 21.4% | 35.7% | 10.7% | 32.1% | 0% |
| 22. I consciously try to use topic sentences in my writing. | 1 | 10 | 6 | 9 | 2 |
| | 3.6% | 35.7% | 21.4% | 32.1% | 7.1% |
| 23. Every paragraph should begin with a topic sentence. | 1 | 5 | 4 | 18 | 0 |
| | 3.6% | 17.9% | 14.3% | 64.3% | 0% |

**Table 38. continued**

| Count<br><br>Percentage | Strongly<br><br>Disagree | Disagree | Undecided | Agree | Strongly<br><br>Agree |
|---|---|---|---|---|---|
| Rating | 1 | 2 | 3 | 4 | 5 |
| 24. I usually write the topic sentence of a paragraph first and then the rest of the paragraph. | 0<br><br>0% | 8<br><br>28.6% | 4<br><br>14.3% | 14<br><br>50.0% | 2<br><br>7.1% |
| 25. I usually check to make sure each paragraph has a topic sentence after I'm done drafting the whole piece. | 1<br><br>3.6% | 14<br><br>50.0% | 4<br><br>14.3% | 9<br><br>32.1% | 0<br><br>0% |
| 26. I try to avoid passive verbs in my writing. | 1<br><br>3.6% | 4<br><br>14.3% | 5<br><br>17.9% | 17<br><br>60.7% | 1<br><br>3.6% |
| 27. Writers should try to avoid passive verbs. | 0<br><br>0% | 4<br><br>14.3% | 8<br><br>28.6% | 13<br><br>46.4% | 3<br><br>10.7% |
| 28. I usually use the grammar checker to find passive verbs in my writing. | 4<br><br>14.3% | 14<br><br>50.0% | 3<br><br>10.7% | 7<br><br>25.0% | 0<br><br>0% |
| 29. I try to avoid "smothered" verbs in my writing. | 0<br><br>0% | 1<br><br>3.6% | 18<br><br>64.3% | 9<br><br>32.1% | 0<br><br>0% |
| 30. I try to use active verbs as much as possible in my writing. | 0<br><br>0% | 2<br><br>7.1% | 6<br><br>21.4% | 18<br><br>64.3% | 2<br><br>7.1% |
| 31. Past or present supervisors have influenced the way I write. | 4<br><br>14.3% | 10<br><br>35.7% | 3<br><br>10.7% | 8<br><br>28.6% | 3<br><br>10.7% |

**Table 39. Participants' Job Comfort**

| Rating | Count | Percentage |
|--------|-------|------------|
| 3.0 | 2 | 7.1% |
| 4.0 | 12 | 42.9% |
| 4.5 | 8 | 28.6% |
| 5.0 | 6 | 21.4% |
| Total | 28 | 100.0% |
| | | |
| Mean | 4.3 | |

**Table 40. Participants' Level of Job**

**Stress**

| Rating | Count | Percentage |
|--------|-------|------------|
| 1.0 | 1 | 3.6% |
| 2.0 | 4 | 14.3% |
| 4.0 | 17 | 60.7% |
| 5.0 | 6 | 21.4% |
| Total | 28 | 100.0% |
| | | |
| Mean | 3.8 | |

**Table 41. Participants' Job Security**

| Rating | Count | Percentage |
|--------|-------|------------|
| 1.0    | 1     | 3.6%       |
| 1.5    | 1     | 3.6%       |
| 2.5    | 2     | 7.1%       |
| 3.0    | 9     | 32.1%      |
| 3.5    | 5     | 17.9%      |
| 4.0    | 5     | 17.9%      |
| 4.5    | 2     | 7.1%       |
| 5.0    | 3     | 10.7%      |
| Total  | 28    | 100.0%     |
|        |       |            |
| Mean   | 3.4   |            |

**Table 42. Participants' Writing**

**Comfort**

| Rating | Count | Percentage |
|--------|-------|------------|
| 2.0 | 1 | 3.6% |
| 2.5 | 2 | 7.1% |
| 3.0 | 2 | 7.1% |
| 3.5 | 1 | 3.6% |
| 4.0 | 9 | 32.1% |
| 4.5 | 5 | 17.9% |
| 5.0 | 8 | 28.6% |
| Total | 28 | 100.0% |
| | | |
| Mean | 4.1 | |

**Table 43. Participants' Use of Topic**

**Sentences**

| Rating | Count | Percentage |
|--------|-------|------------|
| 1.3 | 1 | 3.6% |
| 2.0 | 2 | 7.1% |
| 2.3 | 1 | 3.6% |
| 2.5 | 3 | 10.7% |
| 3.0 | 8 | 28.6% |
| 3.3 | 1 | 3.6% |
| 3.5 | 3 | 10.7% |
| 3.8 | 4 | 14.3% |
| 4.0 | 5 | 17.9% |
| Total | 28 | 100.0% |
| | | |
| Mean | 3.1 | |

**Table 44. Participants' Use of Active and Passive Voice**

| Rating | Count | Percentage |
|--------|-------|------------|
| 2.0 | 1 | 3.6% |
| 2.3 | 1 | 3.6% |
| 2.5 | 3 | 10.7% |
| 3.0 | 1 | 3.6% |
| 3.3 | 10 | 35.7% |
| 3.5 | 5 | 17.9% |
| 3.8 | 4 | 14.3% |
| 4.0 | 2 | 7.1% |
| 4.5 | 1 | 3.6% |
| Total | 28 | 100.0% |
| | | |
| Mean | 3.3 | |

**Table 45. Participants' Avoidance of Smothered Verbs**

| Rating | Count | Percentage |
|--------|-------|------------|
| 2.0 | 1 | 3.6% |
| 3.0 | 18 | 64.3% |
| 4.0 | 9 | 32.1% |
| Total | 28 | 100.0% |
| | | |
| Mean | 3.3 | |

**Table 46. Influence of Supervisors on**

**Participants' Writing**

| Rating | Count | Percentage |
|--------|-------|------------|
| 1.0 | 4 | 14.3% |
| 2.0 | 10 | 35.7% |
| 3.0 | 3 | 10.7% |
| 4.0 | 8 | 28.6% |
| 5.0 | 3 | 10.7% |
| Total | 28 | 100.0% |
| | | |
| Mean | 2.9 | |

**Table 47. Writing Qualities Participants Expected**

| Category | Count | Pct. of Responses | Pct. of Cases |
|----------|-------|-------------------|---------------|
| Conciseness | 26 | 23.4% | 92.9% |
| Clarity | 16 | 14.4% | 57.1% |
| Grammar | 10 | 9.0% | 35.7% |
| Communication | 7 | 6.3% | 25.0% |
| Organization | 7 | 6.3% | 25.0% |
| Spelling | 5 | 4.5% | 17.9% |
| Readability | 4 | 3.6% | 14.3% |
| Simplicity | 4 | 3.6% | 14.3% |
| Audience Adaptation | 3 | 2.7% | 10.7% |
| Punctuation | 3 | 2.7% | 10.7% |
| Error-Free | 2 | 1.8% | 7.1% |

**Table 47. continued**

| Category | Count | Pct. of Responses | Pct. of Cases |
|---|---|---|---|
| Layout/Format | 2 | 1.8% | 7.1% |
| Logic | 2 | 1.8% | 7.1% |
| Other | 2 | 1.8% | 7.1% |
| Parallelism | 2 | 1.8% | 7.1% |
| Tone | 2 | 1.8% | 7.1% |
| Topic Sentence | 2 | 1.8% | 7.1% |
| Accuracy | 1 | 0.9% | 3.6% |
| Active Voice | 1 | 0.9% | 3.6% |
| Cogency | 1 | 0.9% | 3.6% |
| Conclusion | 1 | 0.9% | 3.6% |
| Fluidity | 1 | 0.9% | 3.6% |
| Humor | 1 | 0.9% | 3.6% |
| Register | 1 | 0.9% | 3.6% |
| Relevance | 1 | 0.9% | 3.6% |
| Sentence Structure | 1 | 0.9% | 3.6% |
| Significance | 1 | 0.9% | 3.6% |
| Timeliness | 1 | 0.9% | 3.6% |
| Truthfulness | 1 | 0.9% | 3.6% |
| Total Responses | 111 | 100.0% | 396.4% |
| Total Cases | 28 | | |

**Table 48. Writing Qualities Supervisors Expect According to**

**Participants**

| Category | Count | Pct. of Responses | Pct. Of Cases |
|---|---|---|---|
| Grammar | 11 | 14.1% | 42.3% |
| Spelling | 10 | 12.8% | 38.5% |
| Clarity | 9 | 11.5% | 34.6% |
| Conciseness | 9 | 11.5% | 34.6% |
| Accuracy | 5 | 6.4% | 19.2% |
| Communication | 5 | 6.4% | 19.2% |
| Layout/Format | 4 | 5.1% | 15.4% |
| Not Applicable | 4 | 5.1% | 15.4% |
| Content | 2 | 2.6% | 7.7% |
| Organization | 2 | 2.6% | 7.7% |
| Other | 2 | 2.6% | 7.7% |
| Punctuation | 2 | 2.6% | 7.7% |
| Style | 2 | 2.6% | 7.7% |
| Audience Adaptation | 1 | 1.3% | 3.8% |
| Consistent w/ Org Mission | 1 | 1.3% | 3.8% |
| Error-Free | 1 | 1.3% | 3.8% |
| Fluidity | 1 | 1.3% | 3.8% |
| Logic | 1 | 1.3% | 3.8% |
| Purpose | 1 | 1.3% | 3.8% |
| Relevance | 1 | 1.3% | 3.8% |
| Simplicity | 1 | 1.3% | 3.8% |
| Tact | 1 | 1.3% | 3.8% |

Table 48. continued

| Category | Count | Pct. of Responses | Pct. Of Cases |
|---|---|---|---|
| Thoroughness | 1 | 1.3% | 3.8% |
| Timeliness | 1 | 1.3% | 3.8% |
| Total Responses | 78 | 100.0% | 300.0% |
| Total Cases | 26 | | |

Table 49. Writing Problems That Bothered Participants

| Category | Count | Pct. Of Responses | Pct. Of Cases |
|---|---|---|---|
| grammar | 17 | 17.0% | 63.0% |
| spelling | 13 | 13.0% | 48.1% |
| wordiness | 12 | 12.0% | 44.4% |
| big words | 7 | 7.0% | 25.9% |
| governmentese | 5 | 5.0% | 18.5% |
| lack of clarity | 4 | 4.0% | 14.8% |
| lack of organization | 4 | 4.0% | 14.8% |
| pointlessness | 4 | 4.0% | 14.8% |
| punctuation | 4 | 4.0% | 14.8% |
| typos | 4 | 4.0% | 14.8% |
| purpose not clear | 3 | 3.0% | 11.1% |
| redundancy | 3 | 3.0% | 11.1% |
| diction | 2 | 2.0% | 7.4% |
| failure to adapt to audience | 2 | 2.0% | 7.4% |

**Table 49. continued**

| Category | Count | Pct. of Responses | Pct. of Cases |
|---|---|---|---|
| lack of fluidity | 2 | 2.0% | 7.4% |
| lack of support | 2 | 2.0% | 7.4% |
| missing info | 2 | 2.0% | 7.4% |
| other | 2 | 2.0% | 7.4% |
| illogical | 1 | 1.0% | 3.7% |
| inaccuracy | 1 | 1.0% | 3.7% |
| lack of parallelism | 1 | 1.0% | 3.7% |
| more than 1 idea per paragraph/sentence | 1 | 1.0% | 3.7% |
| passive voice | 1 | 1.0% | 3.7% |
| penmanship | 1 | 1.0% | 3.7% |
| register | 1 | 1.0% | 3.7% |
| tone | 1 | 1.0% | 3.7% |
| Total responses | 100 | 100.0% | 370.4% |
| Total cases | 27 | | |

**Table 50. Audience of Documents**

| Type | Count | Percentage |
|------|-------|-----------|
| Internal | 56 | 30.3% |
| External | 117 | 63.2% |
| Both | 7 | 3.8% |
| Self | 5 | 2.7% |
| Total | 185 | 100.0% |
| | | |
| Mode | Internal | |

**Table 51. Genre of Documents**

| Type | Count | Percentage |
|------|-------|-----------|
| memo | 91 | 49.2% |
| personal letter | 3 | 1.6% |
| e-mail | 19 | 10.3% |
| bullet paper | 2 | 1.1% |
| award | 6 | 3.2% |
| job description | 7 | 3.8% |
| statement of work | 11 | 5.9% |
| misc. | 21 | 11.4% |
| report | 8 | 4.3% |
| instructions | 17 | 9.2% |
| Total | 185 | 100.0% |
| | | |
| Mode | Memo | |

**Table 52. One-Way ANOVA of Topic Sentence Frequency and Length of Paragraphs without Topic Sentences**

| Source | D.F. | Sum of Squares | Mean Square | F ratio | p |
|---|---|---|---|---|---|
| Between Groups | 2 | 548.4774 | 274.2387 | 7.5366 | 0.0007 |
| Within Groups | 182 | 6622.5759 | 36.3878 | | |
| Total | 184 | 7171.0532 | | | |

**Table 53. One-Way ANOVA of Topic Sentence Frequency and PME Attendance**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 2 | 8592.2110 | 4296.1055 | 4.5391 | 0.0119 |
| Within Groups | 182 | 172257.8445 | 946.4717 | | |
| Total | 184 | 180850.0555 | | | |

**Table 54. One-Way ANOVA of Frequency of Active Verbs by Job Specialty**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 8 | 9740.7453 | 1217.5932 | 4.7334 | < 0.0001 |
| Within Groups | 176 | 45272.8092 | 257.2319 | | |
| Total | 184 | 55013.5544 | | | |

**Table 55. One-Way ANOVA of Frequency of Agentless Passive Verbs by Job Specialty**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 8 | 20361.3324 | 2545.1665 | 8.0644 | < 0.0001 |
| Within Groups | 176 | 55546.3850 | 315.6045 | | |
| Total | 184 | 75907.7174 | | | |

**Table 56. One-Way ANOVA of Frequency of Nominals by Job Specialty**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 8 | 2177.7929 | 272.2241 | 3.1639 | 0.0023 |
| Within Groups | 176 | 15143.2311 | 86.0411 | | |
| Total | 184 | 17321.0240 | | | |

**Table 57. One-Way ANOVA of Frequency of Agentful Passive Verbs by Job Specialty**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 8 | 357.0867 | 44.6358 | 1.1545 | 0.3295 |
| Within Groups | 176 | 6804.4223 | 38.6615 | | |
| Total | 184 | 7161.5090 | | | |

**Table 58. One-Way ANOVA of Frequency of Active Verbs by Academic Major**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 5436.1321 | 1812.0440 | 4.6738 | 0.0036 |
| Within Groups | 181 | 70174.9000 | 387.7066 | | |
| Total | 184 | 75611.0322 | | | |

**Table 59. One-Way ANOVA of Frequency of Passive Agentless Verbs by Academic Major**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 5086.8880 | 1695.6293 | 4.3336 | 0.0056 |
| Within Groups | 181 | 70820.8294 | 391.2753 | | |
| Total | 184 | 75907.7174 | | | |

**Table 60. One-Way ANOVA of Frequency of Nominals by Academic Major**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 1106.1023 | 368.7008 | 4.1156 | .0075 |
| Within Groups | 181 | 16214.9217 | 89.5852 | | |
| Total | 184 | 17321.0240 | | | |

**Table 61. One-Way ANOVA of Frequency of Nominals by Level of Education**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 2 | 2786.0889 | 1393.0444 | 3.4673 | 0.0333 |
| Within Groups | 182 | 73121.6285 | 401.7672 | | |
| Total | 184 | 75907.7174 | | | |

**Table 62. One-Way ANOVA of Frequency of Active Verbs by Grade (Military)**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 3519.6712 | 1173.2237 | 3.1148 | 0.0320 |
| Within Groups | 66 | 24859.6268 | 376.6610 | | |
| Total | 69 | 28379.2979 | | | |

**Table 63. One-Way ANOVA of Frequency of Agentless Passive Verbs by Grade (Military)**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 3656.5977 | 1218.8659 | 3.3549 | 0.0240 |
| Within Groups | 66 | 23978.3414 | 363.3082 | | |
| Total | 69 | 27634.9392 | | | |

**Table 64. One-Way ANOVA of Frequency of Nominals by Grade (Military)**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 1095.5569 | 365.1856 | 5.0069 | 0.0034 |
| Within Groups | 66 | 4813.8024 | 72.9364 | | |
| Total | 69 | 5909.3593 | | | |

**Table 65. One-Way ANOVA of Frequency of Agentless Passive Verbs by Grade (Civilian)**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 4253.5288 | 1417.8429 | 3.5753 | 0.0163 |
| Within Groups | 111 | 44019.1180 | 396.5686 | | |
| Total | 114 | 48272.6468 | | | |

**Table 66. One-Way ANOVA of Frequency of Agentful Passive Verbs by Grade (Civilian)**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 514.8736 | 171.6245 | 3.9241 | 0.0105 |
| Within Groups | 111 | 4854.6482 | 43.7356 | | |
| Total | 114 | 5369.5218 | | | |

**Table 67. One-Way ANOVA of Frequency of Active Verbs by Position**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 1 | 3366.5702 | 3366.5702 | 8.5277 | 0.0039 |
| Within Groups | 183 | 72244.4620 | 394.7785 | | |
| Total | 184 | 75611.0322 | | | |

**Table 68. One-Way ANOVA of Frequency of Agentless Passive Verbs by Position**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 1 | 4072.1881 | 4072.1881 | 10.3738 | 0.0015 |
| Within Groups | 183 | 71835.5293 | 392.5439 | | |
| Total | 184 | 75907.7174 | | | |

**Table 69. One-Way ANOVA of Frequency of Active Verbs by Seniority**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 5576.2668 | 1858.7556 | 4.8038 | 0.0030 |
| Within Groups | 181 | 70034.7654 | 386.9324 | | |
| Total | 184 | 75611.0322 | | | |

**Table 70. One-Way ANOVA of Frequency of Agentless Passive Verbs by Seniority**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|--------|------|---------------|--------------|---------|---|
| Between Groups | 3 | 5672.3868 | 1890.7956 | 4.8727 | 0.0028 |
| Within Groups | 181 | 70235.3306 | 388.0405 | | |
| Total | 184 | 75907.7174 | | | |

**Table 71. One-Way ANOVA of Frequency of Nominals by Seniority**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|--------|------|---------------|--------------|---------|---|
| Between Groups | 3 | 713.7904 | 237.9301 | 2.5932 | 0.0541 |
| Within Groups | 181 | 16607.2336 | 91.7527 | | |
| Total | 184 | 17321.0240 | | | |

**Table 72. One-Way ANOVA of Frequency of Agentless Passives by Prior Military Service**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|--------|------|---------------|--------------|---------|---|
| Between Groups | 1 | 116.3998 | 116.3998 | 2.5039 | 0.1164 |
| Within Groups | 113 | 5253.1220 | 46.4878 | | |
| Total | 114 | 5369.5218 | | | |

**Table 73. One-Way ANOVA of Frequency of Nominals by Job Comfort**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 1916.9089 | 638.9696 | 7.5080 | 0.0001 |
| Within Groups | 181 | 15404.1151 | 85.1056 | | |
| Total | 184 | 17321.0240 | | | |

**Table 74. One-Way ANOVA of Frequency of Nominals by Job Security**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 7 | 2155.6743 | 307.9535 | 3.5942 | 0.0012 |
| Within Groups | 177 | 15165.3497 | 85.6799 | | |
| Total | 184 | 17321.0240 | | | |

**Table 75. One-Way ANOVA of Frequency of Active Verbs by Job Stress**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 2700.8075 | 900.2692 | 2.2349 | 0.0857 |
| Within Groups | 181 | 72910.2247 | 402.8189 | | |
| Total | 184 | 75611.1322 | | | |

**Table 76. One-Way ANOVA of Frequency of Active Verbs by Writing Comfort**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 6 | 12118.8132 | 2019.8022 | 5.6625 | < 0.0001 |
| Within Groups | 178 | 63492.2189 | 356.6979 | | |
| Total | 184 | 75611.0322 | | | |

**Table 77. One-Way ANOVA of Frequency of Agentless Passive Verbs by Writing Comfort**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 6 | 14626.5078 | 2437.7513 | 7.0808 | < 0.0001 |
| Within Groups | 178 | 61281.2097 | 344.2765 | | |
| Total | 184 | 75907.7174 | | | |

**Table 78. One-Way ANOVA of Frequency of Nominals by Writing Comfort**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 6 | 3160.1976 | 526.6996 | 6.6206 | < 0.0001 |
| Within Groups | 178 | 14160.8264 | 79.5552 | | |
| Total | 184 | 17321.0240 | | | |

**Table 79. One-Way ANOVA of Topic Sentence Frequency by Audience**

| Source | D.F. | Sum of Squares | Mean Square | F ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 10390.7247 | 3463.5749 | 3.6778 | 0.0132 |
| Within Groups | 181 | 170459.3308 | 941.7643 | | |
| Total | 184 | 180850.0555 | | | |

**Table 80. One-Way ANOVA of Topic Sentence Frequency by Genre**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 9 | 25839.0540 | 2871.0060 | 3.2412 | 0.0012 |
| Within Groups | 175 | 155011.0015 | 885.7772 | | |
| Total | 184 | 180850.0555 | | | |

**Table 81. One-Way ANOVA of Agentless Passive Verbs by Audience**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 1607.6716 | 535.8905 | 2.9784 | 0.0329 |
| Within Groups | 181 | 32566.5642 | 179.9258 | | |
| Total | 184 | 34174.2358 | | | |

**Table 82. One-Way ANOVA of Nominals by Audience**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 3 | 651.3589 | 217.1196 | 2.3575 | 0.0733 |
| Within Groups | 181 | 16669.6651 | 92.0976 | | |
| Total | 184 | 17321.0240 | | | |

**Table 83. One-Way ANOVA of Active Verbs by Genre**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 9 | 7860.4157 | 873.3795 | 3.2414 | 0.0012 |
| Within Groups | 175 | 47153.1388 | 269.4465 | | |
| Total | 184 | 55013.5544 | | | |

**Table 84. One-Way ANOVA of Agentless Passive Verbs by Genre**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 9 | 4154.1697 | 461.5744 | 2.6907 | 0.0059 |
| Within Groups | 175 | 30020.0661 | 171.5432 | | |
| Total | 184 | 34174.2358 | | | |

**Table 85. One-Way ANOVA of Nominals by Genre**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 9 | 2412.7918 | 268.0880 | 3.1469 | 0.0015 |
| Within Groups | 175 | 14908.2322 | 85.1899 | | |
| Total | 184 | 17321.0240 | | | |

**Table 86. One-Way ANOVA of Nominals by Rating for Avoidance of Smothered Verbs**

| Source | D.F. | Sum of Squares | Mean Squares | F Ratio | p |
|---|---|---|---|---|---|
| Between Groups | 2 | 650.1847 | 325.0923 | 3.5491 | 0.0308 |
| Within Groups | 182 | 16670.8393 | 91.5980 | | |
| Total | 184 | 17321.0240 | | | |

**Table 87. Loglinear Analysis of Reasons by Topic Sentence**

| Reason | Lambda | Z-Value | Reason | Lambda | Z-Value |
|--------|--------|---------|--------|--------|---------|
| 1a | 0.0772533157 | 0.18330 | 4a | 0.2454894340 | 0.25359 |
| 1b | 0.7947955784 | 1.00008 | 4b | 0.2454894340 | 0.25359 |
| 1c | 0.2454894340 | 0.25359 | 4c | 0.2454894340 | 0.25359 |
| 1d[*] | -0.6621555493 | -2.13023 | 5a | -0.7274656405 | -0.98604 |
| 1e | -0.8531228546 | -1.17214 | 5b | -0.9534582024 | -1.32159 |
| 1f | 0.7947955784 | 1.00008 | 5c | -0.0599651071 | -0.24963 |
| 1g | 0.2454894340 | 0.25359 | 5d | -0.5592295222 | -1.23871 |
| 2a | 0.3458247818 | 1.02842 | 5e | 0.2454894340 | 0.25359 |
| 2b | 0.0194968722 | 0.05457 | 5f | -0.5592295222 | -1.54814 |
| 3a | 0.2454894340 | 0.89997 | 5g[*] | -1.720423382 | -2.46327 |
| 3b[*] | 0.6891410315 | 2.05078 | 5h | 0.2454894340 | 0.25359 |
|  |  |  | 6 | 0.6691383642 | 1.36948 |

[*]Significant at the $p < 0.05$ level

Note: Lambda for reason 7 is not provided since all parameters are assumed to sum to 0.

**Table 88. Loglinear Analysis of Original Verbs by Chosen Verbs**

|  | Lambda | Z-Value |
|---|---|---|
| Interaction of Original Verb & Chosen Verb |  |  |
| Chosen Verb = Active |  |  |
| Original Verb |  |  |
| Active | 0.5310494015 | 1.93049 |
| Agentless Passive | 0.1010397026 | 0.28399 |
| Agentful Passive | -0.1929829611 | -0.50094 |
| Chosen Verb = Agentless Passive |  |  |
| Active | -0.4283682358 | -1.26876 |
| Agentless Passive[*] | 1.0916421611 | 2.97417 |
| Agentful Passive | -0.3289133867 | -0.73284 |
| Chosen Verb = Agentful Passive |  |  |
| Active | 0.5119957145 | 1.26858 |
| Agentless Passive | 0.1426943090 | 0.29401 |
| Agentful Passive[*] | 1.3735906156 | 2.98153 |
| Main Effects of Chosen Verb |  |  |
| Active[*] | 1.0953056871 | 5.43556 |
| Agentless Passive | 0.3439329177 | 1.51383 |
| Agentful Passive | -0.3600422545 | -1.09795 |

[*]Significant at the $p < 0.05$ level

Note: Lambda for nominals is not provided since all parameters are assumed to sum to 0.

**Table 89. Loglinear Analysis of Reasons by Verb Choice**

| | Active Verbs | | | Agentless Passive Verbs | |
| --- | --- | --- | --- | --- | --- |
| *Reason* | *Lambda* | *Z-Value* | *Reason* | *Lambda* | *Z-Value* |
| 1a | 0.3944978126 | 1.41292 | 1a | 0.4174719123 | 1.33636 |
| 1b | -1.0850381070 | -0.97250 | 1b | 0.5788725724 | 0.72472 |
| 1c[*] | 1.4447281314 | 3.16645 | 1c | -0.0941076324 | -0.15400 |
| 1d | 0.2882272541 | 0.34204 | 1d | -0.2450866441 | -0.21288 |
| 1e | -0.6634383684 | -0.97222 | 1e | -0.0981399779 | -0.14316 |
| 1f | -1.0850381070 | -0.97250 | 1f | -0.5197397163 | -0.46503 |
| 1g | 0.9237006493 | 1.28880 | 1g | -0.4569111092 | -0.40017 |
| 2a[*] | 1.2014123559 | 2.45468 | 2a | 0.1572728340 | 0.25168 |
| 2b | -0.8103850346 | -0.70502 | 2b | -0.2450866441 | -0.21288 |
| 3a | 0.3110238697 | 0.66974 | 3a | 0.0878648999 | 0.15534 |
| 3b | -0.5357319624 | -0.45316 | 3b | 0.0295664281 | 0.02497 |
| 4a | 0.1359902586 | 0.51909 | 4a | -0.0678444384 | -0.21584 |
| 4b | 0.3008881873 | 0.94999 | 4b | -0.0317550154 | -0.08092 |
| 4c | 0.0573007621 | 0.21473 | 4c | 0.0562036777 | 0.18295 |
| 5a | -0.0199293026 | -0.07881 | 5a | 0.3950868848 | 1.47551 |
| 5b | 0.4447196607 | 1.56666 | 5b | 0.0044961856 | 0.01279 |
| 5c | -0.5222556462 | -1.10206 | 5c | 0.6620819527 | 1.61330 |
| 5d | 0.0571625287 | 0.15097 | 5d | -0.4761513695 | -0.91656 |
| 5e | -0.0143878931 | -0.03539 | 5e | 0.5509104974 | 1.33775 |
| 5f | 0.1347012608 | 0.34068 | 5f | -0.0621404008 | -0.12944 |
| 5g | 0.0997414328 | 0.17222 | 5g | -0.1822580370 | -0.25414 |
| 5h | -0.8103850346 | -0.70502 | 5h | -0.2450866441 | -0.21288 |
| 6 | -0.5357319624 | -0.45316 | 6 | 0.0295664281 | 0.02497 |

**Table 89. continued**

| Agentful Passive Verbs | | | | | | |
|---|---|---|---|---|---|---|
| Reason | Lambda | Z-Value | | Reason | Lambda | Z-Value |
| 1a | -0.6157101116 | -1.40084 | | 4a | -0.2075504082 | -0.59329 |
| 1b | 0.8186562243 | 1.02387 | | 4b | 0.0073579410 | 0.01765 |
| 1c | -1.4637618930 | -1.39055 | | 4c | -0.0404849071 | -0.12036 |
| 1d | -0.0053029922 | -0.00460 | | 5a | 0.0684750618 | 0.22590 |
| 1e | 0.6524692978 | 1.10440 | | 5b | 0.1011789938 | 0.27606 |
| 1f | 0.8186562243 | 1.02387 | | 5c | -0.0536458405 | -0.10092 |
| 1g . | -0.2171274573 | -0.19007 | | 5d | 0.1001045190 | 0.21400 |
| 2a | -1.2123814270 | -1.14297 | | 5e | -0.6756429196 | -1.06043 |
| 2b | -0.0053029922 | -0.00460 | | 5f | -0.6696546093 | -1.05048 |
| 3a | -0.1831770720 | -0.27507 | | 5g[*] | 1.1561379035 | 2.07005 |
| 3b | 0.2693500799 | 0.22738 | | 5h | 1.0933092964 | 1.29234 |
| | | | | 6 | 0.2693500799 | 0.22738 |

[*]Significant at the p < 0.05 level

Note: Lambda for reason 7 and for nominals is not provided since all parameters are assumed to sum to 0.

**Table 90. Loglinear Analysis of Reasons for Verb Choices**

| Reason | Lambda | Z-Value | | Reason | Lambda | Z-Value |
|--------|--------|---------|---|--------|--------|---------|
| 1a* | 1.3541498289 | 6.54320 | | 4a* | 1.5650293339 | 8.68563 |
| 1b | -0.9275143674 | -1.65429 | | 4b* | 0.9823962045 | 4.28517 |
| 1c | 0.2562914611 | 0.61796 | | 4c* | 1.5410646764 | 8.53154 |
| 1d | -1.2021674400 | -1.92318 | | 5a* | 1.7685769441 | 10.41623 |
| 1e | -0.2505018171 | -0.65493 | | 5b* | 1.2562999318 | 5.96123 |
| 1f | -0.9275143674 | -1.65429 | | 5c | 0.4556133211 | 1.61272 |
| 1g | -0.9903429745 | -1.63050 | | 5d* | 0.6383351982 | 2.43979 |
| 2a | 0.0049109947 | 0.01129 | | 5e* | 0.5667847764 | 1.99162 |
| 2b | -1.2021674400 | -1.92318 | | 5f* | 0.5607964662 | 1.96540 |
| 3a | 0.0743189289 | 0.21588 | | 5g | -0.1663837580 | -0.38103 |
| 3b* | -1.4768205120 | -2.16077 | | 5h | -1.2021674400 | -1.92318 |
| | | | | 6* | -1.4768205120 | -2.16077 |

*Significant at the p < 0.05 level

Note: Lambda for reason 7 is not provided since all parameters are assumed to sum to 0.

## APPENDIX E.  STATISTICAL TESTS AND TERMS

**ANOVA**:  analysis of variance; used to test the differences in the  means of two or more groups that are normally distributed.

**Bonferroni multiple comparison test**:  a post-hoc test used with ANOVA that corrects for chance and is ued to pinpoint significant differences in the means between specific groups. .

**Chi-square test**:  used to test whether two categorical variables, such as reasons and verb choices, are statistically independent of each other.

**Cohen's kappa**:  a measure of association that corrects for chance and is used to measure the agreement between values of the same variable.

**Degrees of freedom**:  for the $t$-test, the number of cases minus one; for ANOVA, the number of groups minus one; for the chi-square test, the number of categories in the first variable minus one times the number of categories in the second variable minus one.

**Goodman and Kruskal's lambda**:  a measure of association between two categorical variables; used to determine the proportional reduction in error (PRE) of guessing the category of one variable if the category of the other variable is known.

**Kruskal-Wallis ANOVA**:  a test of the differences in means of two or more groups that are not normally distributed.

**Loglinear analysis**:  used to determine whether the counts in a crosstabulation of two categorical variables are due to the interaction of the variables or to their main effects.

**p**:  the probability that a statistical result is due to chance; for example, if $p < 0.05$, the probability of a result being due to chance is less than a 1 in 20 chance; this is the traditional level of statistical significance.

**$t$-test**:  used to test the differences in the means between two groups.

**Two-tailed p**:  a measure "of any difference between groups, regardless of the direction of the difference" (Norman and Streiner 46).